



WELSH WATER 2050: REVIEW AND UPDATE

MARCH 2022

CONTENTS

Foreword	3		
Introduction	4		
Background	4		
Who we are	4		
Approach	5		
Structure of the document	5		
Update of long-term trends and risks	6		
Introduction	6		
Method	7		
Key changes since 2017	8		
Overview of updated risks and trends	9		
Key conclusions	11		
Review of Strategic Responses	13		
Introduction	13		
Strategic Response 1: Safeguarding clean drinking water through catchment management	14	Strategic Response 5: Achieving acceptable water quality for all customers	18
Strategic Response 2: Enough water for all	15	Strategic Response 6: Towards a lead free Wales	19
Strategic Response 3: Improving the reliability of drinking water supply systems	16	Strategic Response 7: Working with customers and communities	20
Strategic Response 4: Protecting our critical water supply assets	17	Strategic Response 8: Ensuring affordability of services delivered to customers	21
		Strategic Response 9 : Supporting customers in vulnerable circumstances	22
		Strategic Response 10: Addressing our 'worst served' customers	23
		Strategic Response 11: Employer of choice	24
		Strategic Response 12: Leading edge customer service	25
		Strategic Response 13: Smart water system management	26
		Strategic Response 14: Supporting ecosystems and biodiversity	27
		Strategic Response 15: Using nature to reduce flood risk and pollution	28
		Strategic Response 16: Cleaner rivers and beaches	29
		Strategic Response 17: Protecting our critical wastewater assets	30
		Strategic Response 18: Achieving net zero carbon emissions by 2040 and promoting a circular economy	31
		Summary: Review of Strategic Responses	32
		Looking ahead to PR24	35
		Final reflections	36

FOREWORD

Five years ago we launched our Welsh Water 2050 document with a mission statement 'to become a truly world class, resilient and sustainable water service for the benefit of future generations'. The strategy described our commitment to plan for the long-term, anticipating and responding proactively to the emerging risks and opportunities around our ability to deliver great service to customers and the environment, now or in the foreseeable future. This will enable us to respond in a way that is timely, effective, fair and affordable.

Welsh Water 2050 set out the key trends that we face over the very long-term, informed by experts, academics and partners. But, how can we plan for 2050 given the difficulty in predicting the future with any certainty? The answer is that we have to proceed wisely based on the information that is available, recognising the uncertainty through adaptive planning, and updating our view regularly. This is why we committed to a five-yearly review of the strategy, of which this is the first.

Since the publication of the consultation document in 2017 we have seen a number of dramatic and unexpected 'shocks', including Brexit, extreme weather events, and of course the Covid-19 pandemic. These events have tested our resilience as a business, while also generating insights that will help us to prepare better for such shocks in the future. There is also evidence that some of the trends identified in Welsh Water 2050 are unfolding more rapidly than anticipated, suggesting that we need to reconsider and possibly accelerate our response.

So this is a good time to reflect and consider the extent to which our 18 Strategic Responses to the long-term trends and risks we face are still fit for purpose, how far we have come, what we have learned, and what needs to change. We are publishing this Review as we begin the process of working with governments, regulators, stakeholders and customers to develop our plans for the next Ofwat price review, PR24, which will determine our investment objectives and the level of bills for 2025-30. These must be set firmly in the context of our long-term ambitions and the challenges ahead.

The service Welsh Water provides is essential to the health of people and the environment, and indeed to the normal functioning of everyday life. The Covid-19 pandemic has highlighted what we stand to lose when the services we often take for granted are disrupted by circumstances beyond our control. It is therefore essential that we do all we can to understand the risks to our service, mitigate them where we can, and ensure that they remain at an acceptable level.

There are significant challenges ahead, as well as opportunities, and we will need to make difficult decisions on where the priorities lie. All the while, we must be conscious of the affordability of services to our customers, particularly in a period of significant financial hardship and uncertainty. As a non-shareholder company, we are able to be guided solely by what is in the best long-term interests of our customers and the environment. We are committed to working closely and

collaboratively with the Welsh Government, our regulators and other stakeholders as 'Team Wales', all in the context of the Wellbeing of Future Generations Act.

We invite you to share your views on this document with us by emailing welshwater2050@dwrcymru.com. Your feedback will help to shape our plans for PR24 and beyond. Thank you for your support.



PETER PERRY
CHIEF EXECUTIVE

INTRODUCTION

BACKGROUND

This document is the result of an exercise undertaken over the course of the last 18 months, to review and update Welsh Water 2050, published for consultation in 2017, and finalised in 2018.

The process has involved reviewing what has changed since 2017, what that tells us about the long-term trends, what progress we have made towards our 2050 objectives, and whether our Strategic Responses remain fit for purpose. We have worked with experts and academics, and consulted with external stakeholders and internal teams.

The aim of the exercise is to ensure that our long-term strategy is optimised given the latest view of the world, as it is now and as we expect it to be in the future, taking into account the latest evidence. In Welsh Water 2050 we committed to a review of this kind every five years, to keep the strategy current, and to feed into the preparations of our long-term delivery plans. We also need to ensure we are reflecting the latest Welsh Government Programme for Government, its Strategic Priorities Statement to Ofwat, and other policy priorities such as the Foundational Economy.

Those plans will form part of the next Ofwat Price Review, PR24, and we will submit our business plan proposals to Ofwat in October 2023. Between now and then, we will be working closely with stakeholders to further define the vision for water in our supply area, and the long-term outcomes that we, working together, wish to achieve for customers and for the environment. Given that we will not be able to do everything at once, we will set out a long-term plan with the key expenditure required in each five-year period, resulting in an optimised and efficient plan for 2025-30. In all this we, will take into account customer views and priorities, paying particular attention to questions of affordability and the needs of vulnerable customers.

WHO WE ARE

Welsh Water is part of the Glas Cymru Group. We are a not for profit company without shareholders, and therefore we retain all financial surpluses for the benefit of our customers. We are responsible for the provision of statutory water and wastewater services to around 1.3 million households and businesses across much of Wales, Herefordshire and parts of Deeside. Our vision is 'to earn the trust of our customers every day'.

APPROACH

This Review supplements and updates the original Welsh Water 2050 strategy – it does not replace it. Our Welsh Water 2050 mission remains unchanged: "to become a world-class, resilient, and sustainable water company water service for the benefit of future generations."

This means that we must be prepared to overcome and adapt to the stresses, shocks and challenges ahead, so that we can meet the needs of customers and the environment both today and long into the future.

In this review, therefore, we set out to answer the following key questions:

- How has our operating environment changed since 2018? How different is this to our expectations? What does this tell us about adaptability and resilience?
- What is the latest evidence on the trends and risks (both positive and negative) affecting the delivery of services for customers and the environment over the long-term?
- What does this updated view mean for how we can most effectively respond to the long-term threats, risks and opportunities?
- What, therefore, should be the priorities for our PR24 Business Plan?

In order to address these questions we consulted with a wide range of experts from outside the business, but also relied heavily on the insights and expertise of those in the business with responsibility for delivering on our long-term goals. We commissioned Cardiff University to review the academic literature and wider evidence on the various risks and stresses. We then reviewed our Strategic Responses in the light of this updated information, and determined in which areas we are 'on track', and in which we are 'at risk'.

In undertaking this exercise we have taken account of the legislative and policy context in Wales, including the Wellbeing of Future Generations Act, the Environment Act, the Wales Water Strategy, and the current Programme for Government. It is also important to consider the broader UK and European context, and the contribution we can make to the United Nations Sustainable Development Goals. We have consulted customers on their views of the service we provide today and the priorities for the future, as well as their perceptions of bill levels, and taken these views into account in the formulation of this review.

In taking the approach outlined above, this review serves as an update to Welsh Water 2050, and the two documents should be considered together going forward to provide a full picture of our long-term strategy.

STRUCTURE OF THE DOCUMENT

The next section describes how we approached updating our view of current and long-term stresses, risks and trends. It reports the results of a study commissioned from the Water Research Institute of Cardiff University to examine developments since 2017 and the outlook for the future. It then summarises the findings into eight key risks to which we will respond over the long-term.

The document goes on to review the 18 Strategic Responses set out in Welsh Water 2050, to describe the latest evidence on how the risks and trends are affecting the business in each area, assess progress in implementing the response, and what this means for our business planning.

In the final section of the document we consider the key conclusions and considerations looking ahead to PR24.

UPDATE OF LONG-TERM TRENDS AND RISKS

INTRODUCTION

Welsh Water 2050 identified eight future trends that are likely to have the most significant impact on service provision over the long-term. These are reproduced here (in no particular order). They were identified in a research report prepared by Cardiff University, based on a series of expert 'horizon scanning' workshops, and in an extensive desk review of relevant literature by Arup consultants.

These challenges and opportunities are described in detail in Section 2 of Welsh Water 2050. These are all still relevant today which, given that these are mostly long-term trends, is unsurprising. Even so, there have been some significant shocks and stresses that were unanticipated. We also have five additional years of data on which to base our view of long-term uncertainties such as the impact of climate change.

It is, therefore, important to refresh our original view of risks and opportunities affecting our service, and to identify any new emerging trends, before going on to re-evaluate our Strategic Responses in light of these. At the same time, we recognise that any statement of long-term trends will be incomplete and imperfect, given the inherent uncertainties about the future.



Climate change

Climate change will result in more extreme rainfall events, which could lead to an increased risk of flooding and pollution. Drier, hotter summers are projected, which could result in water supply deficits and the potential for increased water demand.



Change in customer expectations

Customer expectations are likely to change dramatically with a desire for a more personalised service and control over their use of services and less tolerance of service outages. This will particularly be the case for business customers.



Environmental change

Invasive species, land use change and an increased risk of environmental pollution may lead to a reduction in water quality and biodiversity. However, co-operative approaches for the delivery of enhanced ecosystem services could lead to better environmental outcomes.



Protecting essential infrastructure

Ageing infrastructure, a limited supply chain and cyber security are key concerns for the future service provision. Technological advances could lead to significant efficiencies in the planning, delivery and operation of new assets.



Protecting public health

Regulatory standards to protect drinking water quality are likely to continue to tighten in the future. We will have a role to play in promoting healthier and more sustainable lifestyles for our customers.



Policy and regulatory change

Changes in policy and regulation are expected due to the UK leaving the European Union, devolution and changing quality standards; this creates uncertainty, but provides the opportunity for us to help shape future policy. Improved regulatory methods and innovative policy developments could lead to more efficient delivery of services to our customers.



Changes to the structure of the economy

The growth of the digital, knowledge-based economy will create opportunities to provide services in more efficient ways. However, it could also have an impact on the nature of society, and present a challenge to continuing to meet the needs and expectations of our customers.



Demographic change

Population growth will lead to increased water demand in certain areas and an ageing population may lead to more customers in vulnerable circumstances. However, opportunities will emerge to develop a more diverse age profile in the workforce.

“

Climate change will result in more extreme rainfall events, which could lead to an increased risk of flooding and pollution.

”

METHOD

In order to update our view of long-term trends, in 2021 we commissioned Cardiff University's Water Research Institute to undertake a review of the latest evidence and to gather the views of experts and stakeholders such as regulators, government representatives, academics and non-governmental organisations. We asked them to consider the following questions:

- What has the experience of the last three to five years told us about the challenges facing Welsh Water in the long-term and the likely opportunities?
- What does the relevant academic literature tell us about the key issues affecting the resilience of Welsh Water's business?
- What are the developments relating to each of the key trends identified in Welsh Water 2050?
- How do these changes relate to Welsh Water's vision of providing a world-class resilient water service for future generations?
- How might these various trends, risks and opportunities combine, overlap and reinforce each other?

The team used a 'PESTLE' framework to scan the risks and trends in the Political, Economic, Social, Technological, Legal and Environment realms. They identified 16 risk factors which were then scored on a likelihood/severity matrix. They also examined the linkages and interdependencies across these risks. The report can be found [here](#).

KEY CHANGES SINCE 2017

The table below highlights just some of the key areas Cardiff University identified as significant changes in our operating environment since 2017, with potential impacts on risks, threats and opportunities, categorised according to the 'PESTLE' framework. The full report provides a more complete exposition of the developments and expected trends in each area. Note that the report was produced before the recent crisis in Ukraine.

POLITICAL

Brexit

Likely to have direct impact through the impact on the economy and supply chain disruptions; regulatory and legislative changes; and potentially demographics.

Green Recovery

Wales is seeking to create economic opportunities that also address environmental issues and climate change, which could create opportunities for Welsh Water to work with partners to deliver environmental improvements.

ECONOMIC

Recessions

We have seen a major economic shock due to the impact of the Covid-19 pandemic. This threatens the ability of some customers to pay their bills, with potentially significant knock-on effects on company finances. The long-term economic impact of the pandemic remains to be seen.

Circular economy

Increased focus on the principles of the circular economy, with potential risks and opportunities for bioresources recycling activities in particular.

Growth

Risk that concerns and constraints around CSOs and phosphates limit our ability to support economic growth and development.

SOCIAL

Pandemic

Major economic, social and psychological impact in multiple arenas, in particular working patterns.

Demographics

Impact of Covid-19 on rural vs urban populations. Growth of domestic tourism, with a significant impact on water demand and water services.

Growing environmentalism

Customers increasingly aware of environmental issues, including pollution, water use, and becoming more supportive of environmental initiatives in general.

TECHNOLOGICAL

Customer expectations

Continuing to change rapidly as technology evolves

Smart meters

Water companies are slowly expanding metering, and the technology to support smart meters is improving.

Digital innovation

Water companies are embracing the opportunities of cloud services and big data analytics.

Cybersecurity

A high and growing risk, with a significant potential impact on Welsh Water.

LEGAL

Brexit

The legislative and regulatory changes triggered by Brexit are becoming clearer. The landscape may look very different in five years' time, particularly in terms of environmental regulations and land use incentives.

Governance and policy-making

Growing complexity of structure of governance and policy-making, particularly in the delineation of powers between Cardiff (Wales), and Westminster (for Welsh Water's operating area in England).

ENVIRONMENTAL

Climate change

Clear evidence of an acceleration of climate change impacts, particularly in terms of flooding events. Growing understanding and awareness of the biodiversity crisis.

Net zero

Sharp focus on the net zero carbon agenda, with national targets set, and the declaration in Wales of a climate emergency.

Contaminants

Growing evidence of the presence of microplastics, Perfluoroalkyl and Polyfluoroalkyl Substances (PFAs), and other contaminants in the environment.

OVERVIEW OF UPDATED RISKS AND TRENDS

Following on from the above analysis, the Cardiff University team identified the 16 issues most likely to affect Welsh Water's resilience over the next 30 years, with impacts on the business and its operations but also on society and the environment.

We provide below a brief summary of how Cardiff University saw each of these issues:



1. Changing climate patterns

The increasing frequency and severity of extreme weather events such as drought and flooding.



2. Decarbonisation and sustainable business practices

The resource cost and trade-offs linked to implementing the necessary move towards net zero carbon to achieve 2050 targets, as well as the need for energy efficiency in operations, circular economy practices, and sustainable supply chains.



3. Price caps, affordability and potential trade-offs

The constraints of balancing affordability concerns for customers, prices caps imposed by regulators limiting necessary investment, and the need to invest in initiatives such as improving infrastructure and environmental protection.



4. Public health

Water quality issues that might cause health risks to the population (including crypto, lead, PFAS, E. Coli etc.), having regard to the direct effects of epidemics present and future on DCWW operations (e.g. viral or bacterial pathogens).



5. Regulatory changes

The UK Environment Act (2021), and several other regulatory changes which will become law in a post-Brexit Wales by 2025, are likely to bring tighter environmental standards, driving significantly increased monitoring and investment costs.



6. Major economic fluctuations

Integrating and considering the impact of future major economic fluctuations such as the consequences of pandemics, financial crashes, or significant recessions.



7. Drainage and Combined Sewer Overflows (CSOs)

Managing issues of river water quality and pollution, linked to lack of treatment capacity or functionality in drainage systems, exacerbated by climate change, whilst facing increasing public pressure and expectations to resolve such issues.



8. Emerging and persistent contaminants

Continuing to find solutions to legacy contaminants while finding ways to manage new contaminants such as microplastics and pharmaceutical compounds. This includes issues with recycling of biosolids/sludge recycling, micropollutants, nitrate vulnerable zone designation and potential associated changes in regulations.



9. Increasing customer and stakeholder expectations

Keeping up with accelerating customer expectations around service levels and technology, while ensuring we retain customer and stakeholder trust against a background of increasing environmental concerns such as carbon net zero, water quality impacted by phosphate levels and CSO discharges, recycling of bioresources, and the other concerns of stakeholders and pressure groups.



10. Cyberattacks

Preparing to respond to potential cyberattacks that might put customers' data at risk, affect critical controls, or impact the water supply.



11. Resourcing disruptions

Considering the potential impact of disruption caused by events such as Brexit and Covid-19 on the whole supply chain (including on the availability of chemicals). Also considering potential shortfalls in labour resource and a lack of necessary skills in the available workforce.



12. Water transfers

Pressures on water resources linked to inter-basin water transfers and evaluating their impact.



13. Legacy infrastructure

Considering the set of risks posed by physical, biological and chemical degradation of infrastructure and/or lack of capacity in design of legacy infrastructure. Also considering the risks posed by ageing digital infrastructure.



14. Environmental responsibility

Managing the impact of our activities on freshwater biodiversity and the important ecosystem services biodiversity brings. Considering the overall environmental responsibility of DCWW in their operations.



15. Demographic and behaviour changes

The growth of homeworking and its implications, and preparing for a growing and ageing population.



16. Unsustainable land use

Considering the impact of unsustainable land use including agricultural intensification.

We have reviewed the eight key trends described in Welsh Water 2050 in light of these 16 resilience issues identified by the Cardiff University report. We have updated our internal view of the trends to better capture the insights provided here, but consider that they remain a valid summary of the key threats, opportunities and challenges facing the resilience of our services over the long-term. We will keep this under review, not least in light of the recent crisis in Ukraine, which has implications for energy prices, cybersecurity and a number of other long-term risks.

KEY CONCLUSIONS

Based on the review of trends, risks and resilience issues above, we draw the following key conclusions that we will take forward into the review of Strategic Responses and our investment planning for PR24:

1. The pandemic has shown the importance of protecting our services against the 'big risks' and being agile in responding to 'big opportunities'.

'Black swans' refer to the low-probability but very high impact risks that are difficult to foresee and may be hard to conceptualise until they take place. Author John Elkington (2020) also emphasises the importances of 'green swans,' which are unexpected opportunities to create breakthrough change. The Covid-19 pandemic was arguably both: it had a major impact on our services, posing major challenges, while also creating opportunities for positive change in how we work. While 'pandemics' was a risk mentioned in Welsh Water 2050, few had a good understanding of what the actual impact would be on society, on the economy, and on Welsh Water.

What will be the next such event? As this is unknowable, we have to remain resilient and flexible as a business in how we operate. If and when it does come, having well-resourced assets, a well-trained workforce, and the trust of our customers, will be vital.

We can, however, do more to prepare for known low-probability but relatively high-impact risks. For example, we know that there is a growing risk of cyberattacks. These are becoming increasingly prevalent, and our vulnerability will grow as our service provision becomes more digital.

In considering our plans we must consider the appropriate 'risk appetite' for these and other such risks. Customers tell us that since the pandemic, they are more aware of the possibility of major risks and service failures, and expect us to do more to protect against these 'big risks'. The implication is that customers' 'risk appetite' has come down, and we should plan to invest accordingly.

2. Protecting our service against the impacts of climate change is a top priority.

It is clear from the analysis above that climate change is the pre-eminent challenge that we face, both now and in the future. It is at the top of the 'impact/likelihood' matrix, and also was identified as the risk with the most interconnections and 'knock on effects' to other risks.

There is a widespread consensus that the frequent extreme weather events we have seen since 2017 in our area and further afield, from freeze/thaw to rainstorms and very long dry periods, constitute evidence of the accelerating impact of climate change.

The floods in February 2020 saw a major water treatment works (Mayhill) flooded for a number of days, putting supplies at risk for thousands of customers. We also saw many wastewater treatment works flooded. In both 2018 and 2020 we saw extended dry periods that severely reduced reservoir levels.

The risk to our assets and the services we provide is becoming more clearly understood in the business. We will need to invest to protect the essential services we provide against the effects of climate change. Without such investment there is a significant risk of deteriorating performance and more frequent service failures, which customers have told us would not be acceptable.

A key conclusion of this review is that the tension between the needed investment in resilience and affordability of bills will be put under greater strain in future price reviews. We will therefore need a model of greater collaboration and flexibility with regulators and policy makers, facilitating more innovation over longer timeframes, to deliver even better value for money.

We must also play our part in climate change mitigation. As a major energy user, and as an 'anchor company' in Wales, we have a duty to reduce carbon emissions. We must innovate and invest to reduce these emissions, pursue research to better understand our contribution, and encourage others to play their part. This is the right thing to do in itself, but it is also important to help protect the ecosystems and communities on which we depend. As landowner we can and should make a real difference.

3. We need to work collaboratively to make the most of the opportunity for regulatory innovation.

There has been significant legislative and regulatory change since 2017, mostly triggered by the UK's departure from the European Union. The 'post Brexit' regulatory landscape is still emerging and it is not yet clear how environmental regulation will develop. It is apparent, though, that the mechanisms for the regulation, enforcement and funding of land management, and agriculture in particular, is undergoing the most radical change for over a generation.

For Welsh Water, there are clearly both risks and opportunities from these developments in terms of meeting our objectives for the environment.

There are concerns about a lowering of environmental standards from eNGOs, but both UK and Welsh governments have committed to (at least) maintaining the standards of environmental regulation established under the European Union. It is also vital that an effective governance, oversight and enforcement framework is established to replace the role of the European Commission, in a way that works for Wales and for England, and that the process of 'equivalence' in transposing new environment standards is made clear.

New or updated regulations such as a new Drinking Water Directive, a new Urban Wastewater Treatment Directive which we expect to see in 2022, and upcoming reviews of others such as the Industrial Emissions Directive, the Sewage Sludge Directive, and the Bathing Waters Directive will all, if transposed at an equivalence level, create significant demands for additional investment, which will in turn put upwards pressure on bills in competition with other investment priorities.

There are also major changes envisaged in the way in which the government incentivises land owners, managers, and farmers to manage land in a sustainable way. The move towards the use of public money to fund public benefits will create opportunities for us, both as a user of such 'public/ environmental services', and also as a landowner. We are already working with partners on ways of better valuing environmental benefits, which will help with investment planning and with future funding mechanisms.

With so much in a state of flux, environmental stakeholders face a rare opportunity to reconsider the way regulations are designed and applied, in order to better target actual improvements in environmental outcomes, such as river and marine water quality. This could help us to generate and recognise greater environmental value from the investments we make, and enable our regulators

to align better the incentives for water companies with the environmental outcomes we and our customers want to achieve.

We believe that we must seize this opportunity to develop more effective ways of working, through regulatory and legislative innovations. This will require us to work closely with government and regulators, with all playing their part, and being open to different ways of doing things – all focused on Sustainable Development as required by the Wellbeing of Future Generations Act. It will also require a degree of trust, openness and flexibility. Fortunately, we have strong relationships already in place, and a track record of such partnership working in Wales. We are committed to playing our part to embrace this opportunity.

All of the above suggests that the future will be significantly different to the past. Past models of operations and regulation must be critically examined in order that they 'move with the times'. Change will be gradual so making a start is urgent.

We need to gather more data, and this will come at a cost that will have to be allowed for, especially given the limited resources available to public bodies. Our assets were designed for very different operating conditions to those we have today, so there is a case that asset replacement should be accelerated, particularly given the importance of energy efficiency in light of the carbon neutrality challenge.

Underpinning all of this is the trust that our customers place in us. Maintaining and enhancing this relationship is essential. When we engage with customers, they understand and appreciate the challenges we face, but, coming into the conversation, have limited understanding of these issues. Our customer engagement strategy will, therefore, remain crucial.

REVIEW OF STRATEGIC RESPONSES

INTRODUCTION

The 18 Strategic Responses outlined in Welsh Water 2050 describe how we plan to respond to the challenges and harness the opportunities associated with current risks and future trends. They are grouped into three areas detailed below: drinking water, customers and communities and environment.

Given the latest evidence on risks and trends set out above and in the accompanying report from Cardiff University, it is important that we review our Strategic Responses to ensure that they are still the best basis for ensuring we can deliver on our mission for 2050 – becoming a world-class, resilient and sustainable water service for the benefit of future generations.

Welsh Water’s Board discussed this issue in November 2021 and concluded that after only five years it was unnecessary and premature to make wholesale changes to the headline Strategic Responses. However, we should consider what changes of emphasis might be required, review progress in the last five years, and highlight any issues around the pace of implementation that we could take forward into our planning for PR24.

We have therefore undertaken an exercise to consider the following questions in relation to the Strategic Responses:

- What was the purpose of each Strategic Response in relation to the key long-term trends?
- What is the latest evidence on developments affecting each response, and what relevant developments have occurred?
- How are we responding to the latest evidence on the challenges and opportunities?
- What innovation is taking place, and what are we learning from the latest research?
- What is the outlook and what does this mean for our PR24 investment plans?

The following pages present a summary of the results of the above analysis. We will present further detail and analysis as part of our Business Plan submission to Ofwat in 2023, which will include proposals on how we plan to deliver on our long-term ambitions to 2050.

DRINKING WATER	1	Safeguarding clean drinking water through catchment management
	2	Enough water for all
	3	Improving the reliability of drinking water supply systems
	4	Protecting our critical water supply assets
	5	Achieving acceptable water quality for all customers
	6	Towards a lead free Wales
CUSTOMERS & COMMUNITIES	7	Working with customers and communities
	8	Ensuring affordability of services delivered to customers
	9	Supporting customers in vulnerable circumstances
	10	Addressing our 'worst served' customers
	11	Employer of choice
	12	Leading edge customer service
	13	Smart water system management
ENVIRONMENT	14	Supporting ecosystems and biodiversity
	15	Using nature to reduce flood risk and pollution
	16	Cleaner rivers and beaches
	17	Protecting our critical wastewater assets
	18	Promoting a circular economy and combating climate change

1

STRATEGIC RESPONSE 1: SAFEGUARDING CLEAN DRINKING WATER THROUGH CATCHMENT MANAGEMENT

Catchments as a first line of defence: We will face increased levels of pesticides, fertilisers, nutrients and pathogens in raw water, and increased turbidity of water reaching our water treatment works due to the intensification of agriculture and greater intensity of storms. We will co-create an extensive, innovative programme of catchment management with landowners and partners.

Latest evidence

We have already started to see the impact of climate change on a number of our catchments, in particular landslides in the central Brecon Beacons and the prevalence of taste and odour compounds (e.g. 2-methyl isoborneol (MIB) and geosmin). More widely, it is anticipated that climate change will increase the frequency of extreme weather events (drought and flood), and associated changes in land management practices may result in a wider use of chemicals e.g. pesticides, fertilisers.

The most significant overhaul of land management policy in over 40 years is about to be introduced as we transition from the EU's Common Agricultural Policy and develop domestic regulations to enable increased resilience in our farming industry as well as tackling the climate and nature emergencies. This could trigger major shifts in agricultural trends as farms adapt their business, such as an increase in horticultural production leading to wider cultivation and pesticide use.

Our response

Our approach recognises the need to work collaboratively to secure sustainable land management. This will help us to respond to and recover from existing raw water challenges, and also ensure the long-term protection of water and the environment. We will be implementing this through the approach already adopted for the Brecon Beacons Mega Catchment.

The catchment communities we work with include farmers, foresters and other residents, as well as a spectrum of local and national government organisations, industries, academia, and third sector organisations that influence land management, policy and behaviour. By working in partnership

with our key stakeholders, we will be able to achieve multiple benefits, leverage further resources, and achieve economies of scale that will help to forestall more costly 'downstream' capital investments.

Research and innovation update

We are working closely with scientific and research communities to better understand raw water quality and climatic changes in our catchments. We are at the leading edge of research in our understanding of the triggers of taste- and odour-causing compounds (geosmin and MIB), and are working extensively to understand future trends in natural organic matter releases. We are also currently monitoring our raw water sources for Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) 'forever chemicals'.

Summary and outlook

We remain of the opinion that working collaboratively with partners in our catchments is the most effective and beneficial means of addressing long-term threats to raw water quality. We are making good progress, but must remain adaptable. The approach requires a long-term commitment to deliver and maintain results, so will feature again in our PR24 plans.

2

**STRATEGIC RESPONSE 2:
ENOUGH WATER FOR ALL**

Confronted with an increasing water supply demand gap due to population growth and drier summers due to climate change, we will use our Water Resource Management Plan to ensure the water supply demand balance to 2050. We propose to implement water transfers, demand management measures and leakage reduction programmes to address any deficits, whilst recognising the possible need to support other parts of the UK.

Latest evidence

The declaration of both a Climate and Nature Emergency in Wales means that we are now required to explain how we plan to maintain levels of service to customers and the environment. In addition, there is an expectation that we should be moving towards higher levels of resilience by planning for a 1 in 500 year drought, as against 1 in 250 currently. Regional Water Resource Planning has been introduced by regulators to foster more inter-company sharing of resources, where these are mutually beneficial. Operationally, we have experienced two extended periods of hot, dry weather (in 2018 and 2020) which has allowed us to update our understanding of catchment hydrology across the region. The Covid-19 pandemic has brought changing patterns of water use, with increased domestic water consumption. This combined with an increase in domestic tourism to produce higher peaks of demand, especially during the summer months.

Our response

Like all water companies every five years we produce an updated Water Resources Management Plan as the basis for ensuring sufficient supplies over the long-term, incorporating the latest climate change and customer demand forecasts.

A long-term prioritised programme of surveying our dam structures is underway, working with our regulators, to ensure they are resilient against climate change and meet new regulatory requirements.

Research and innovation update

We are focusing our research into both demand management and water supply. We are investigating the latest leakage reduction and domestic metering technologies, working to better understand our customers behaviour, and linking these through our Project Cartref approach, which addresses leaks and water use in the home. We have invested in new supply side modelling techniques from stochastic hydrology to system simulation models to understand better the likely effects of droughts and climate change upon our water resources.

Summary and outlook for PR24

The impact of the pandemic and increased domestic tourism, when overlaid on the changing climate, pose a challenge for our water resources planning. The move towards planning for a 1 in 500 year drought and further reducing our impact upon the environment, will drive additional investment needs, as will population growth, particularly in South East Wales. Our 2024 plan will be multi-faceted and able to adapt to the wide range of future uncertainties that exist, through a combination of investment in demand management measures such as ambitious leakage reductions, the increased take-up of meters, and enhancement of our water resources and supply networks to increase system resilience.

3

**STRATEGIC RESPONSE 3:
IMPROVING THE RELIABILITY OF
DRINKING WATER SUPPLY SYSTEMS**

Faced with an increased risk of outages due to agricultural run-off, extreme weather events, terrorism, and cyberattacks, we will build more flexibility and integration into our water treatment and supply systems.

Latest evidence

Since 2017 we have seen a number of extreme weather events – evidence of the impact of climate change. There is also a growing threat of cyber attacks (see SR13). Where these impacts cause asset failures they could challenge the ability of our network to move water to where it is needed. This is why we need to build greater flexibility and resilience into our networks.

Our response

We are currently reviewing our long-term programme of investment to increase the resilience of our water supply network. We aim to have fewer, more resilient water treatment works by 2050, and have begun work on developing plans for a major new treatment works in South East Wales to replace three older works. We will improve interconnectivity both within and between water resource zones to reduce the number of customers with a single source of supply, focussing on populations too large to be supplied by tankers.

Research and innovation update

We are continuing to invest in 'smart' technology to improve effective management of our water networks. Over the long-term we believe there is potential to explore lower cost treatment methods, and develop new tunnelling techniques for laying and rerouting trunk mains.

Summary and outlook for PR24

We are developing a long-term, prioritised programme of investment, starting with PR24, to build greater resilience into our water supply systems. This is necessary both to mitigate against the growing risks caused by climate change and other threats, and to address vulnerabilities in our network that are no longer defensible. These resilience improvements risk being squeezed at each price review by more 'urgent' expenditure. They are also harder to justify using standard cost benefit tests, as the benefits of risk reduction are difficult to value. Nevertheless, this programme will play a vital part in meeting our ambition to ensure we have a world-class, resilient water service by 2050.

4

**STRATEGIC RESPONSE 4:
PROTECTING OUR CRITICAL WATER
SUPPLY ASSETS**

With increasing risks of disruption (for example, from severe weather events resulting from climate change and increased reliance on technology) and limited customer tolerance of supply outages, we will improve the resilience of critical water assets which have high consequences of failure.

Latest evidence

Extreme weather is growing in intensity and frequency. In February 2020, during Storm Dennis, our Mayhill treatment works in Monmouth was flooded, and residents were kept in supply by tankers and bottled water. This illustrates one of the many growing resilience challenges as climate change progresses. This poses a threat not just to the continuation of service but to the assets themselves.

Other threats to critical assets include cyberattacks, terrorism and physical condition. Cyberattacks are evolving quickly and have already impacted water utilities abroad. There are also heightened risks of resource disruptions following Brexit.

The failure of concrete panels at the dam at Toddbrook Reservoir in Derbyshire in 2019, and other dam failures in the US in 2020, shone a spotlight on the risks to dam structures posed by heavy rain and the changing climate, though poor design and maintenance were the primary causes in these cases. Other critical assets include trunk mains, service reservoirs and pumping stations.

Our response

In the face of the growing threats we are reviewing our register of critical assets and prioritising investments to secure assets against physical and cyber threats. We are reviewing our programme of resilience upgrades, to include security upgrades, flood protection, power resilience and twinning of strategic mains crossing under rivers, roads and railways. We are also updating our site contingency plans.

Research and innovation update

We are undertaking flood surveys to better understand the risks to our assets of major flooding, as well as looking at the impact of climate change on our infrastructure more generally. We are taking account of the recommendations of the NIC's National Infrastructure Assessment (November 2021) and will engage with the National Infrastructure Commission for Wales on the interdependencies with key infrastructure providers such as power and transport to understand the system implications.

Summary and outlook for PR24

With risks to our critical assets increasing, we will put measures in place to prevent the risks to the essential service we provide from growing. The focus is on low-probability events that could have a major and prolonged impact on the availability of water to customers. This risk is difficult to quantify but we are improving our understanding of it, and identifying areas where the risk we are carrying may be unacceptable. The most urgent interventions in this area are likely to feature in our plans for PR24.

5

**STRATEGIC RESPONSE 5:
ACHIEVING ACCEPTABLE WATER
QUALITY FOR ALL CUSTOMERS**

Ageing water mains and more extreme weather events increase the risk of supplying water which is temporarily discoloured or has a poor taste. This will be addressed through a targeted replacement of iron mains. We aim to achieve 0.8-1.3 contacts per 1,000 population by 2050.

Latest evidence

We are seeing an increase in the chemical compounds in raw water that are linked to this issue, which could be caused by changing rainfall patterns. Extremes of dry and wet weather increase ground movement and trigger landslips, which can also cause problems.

There are some signs that customer expectations are changing and tolerance even for relatively minor service failures such as this are declining.

The expectations of regulators are also evolving. The Drinking Water Inspectorate (DWI) is looking to us to deliver twice the current industry average performance by 2030. That said, it recognises that we are making improvements and supports the approach we are taking.

Our response

Where possible we are taking steps 'at source' to address this issue, such as by improving raw water quality (see SR1), and treating water to remove its manganese content. However, ultimately the replacement of cast iron mains will be required over the long-term if we are to align ourselves with the rest of the industry and meet DWI's expectations on this measure of performance. During 2020-25 we expect to replace 166 kilometres of cast iron mains. However, the current pace of mains replacement will need to increase materially if we are to meet our 2050 goal.

Research and innovation update

The science behind discolouration, taste and odour problems is complex. We are learning more about the causes and how they are changing, such as the impact of geology, and in particular the manganese content in raw water, on discolouration. However, our understanding remains incomplete and we continue to work in this area with scientific partners.

We also continue to work with the PODDS group (Prediction of discolouration in distribution systems) at Sheffield University on the ways in which manganese accumulates in layers on the inside of trunk mains.

We have made some advances in techniques for cleansing pipes, but as yet there have been no breakthroughs.

Summary and outlook for PR24

Meeting our 2050 ambitions on this measure is a major challenge for the business. The replacement of cast iron mains is not advancing rapidly enough and, at an estimated cost of £2.8bn to 2050 for wholesale replacement, is likely to be unaffordable. Other solutions such as manganese removal will only get us so far, so we will continue to look for technological breakthroughs while progressing at a pace deemed affordable by customers. We will consider carefully what progress we can make in this area during AMP8 in view of the competing pressures on our PR24 business plans.

6

**STRATEGIC RESPONSE 6:
TOWARDS A LEAD FREE WALES**

We have the opportunity to help improve public health and propose a targeted replacement of lead communication and supply pipes, as part of a wider societal effort to address lead in drinking water.

Latest evidence

Lead is known to be a cumulative poison for humans, with fetuses and children up to the age of 6 being particularly susceptible to its various effects (WHO, 2011). Globally, regulations are moving towards zero lead concentration in drinking water. In Wales water companies are now required when notified, under the Water Supply (Water Quality) Regulations 2018, to replace lead pipes belonging to them, where the owner of a property is replacing their portion of a lead supply pipe. The standard of lead concentration has tightened from 15 to 10 microgrammes per litre and may tighten further to five microgrammes per litre.

This issue is related to the government's objectives to address deprivation and the disparity in opportunities in society. The current Welsh Government's Programme for Government includes a commitment to 'eliminate inequality in all its forms' and 'make our cities, towns and villages even better places in which to live and work'.

Our response

While there is no obligation on us to replace customers' lead pipes, we believe it is right for us to help address a societal issue. 7,000 customer lead pipes are due to be replaced during 2020-25 at a cost of some £14 million which will be shared across all customer bills.

There will still be upwards of 200,000 lead supplies to replace at a cost of some £500 million. We estimate to achieve this would need around 35,000 lead pipe replacements per AMP. Even where there is no charge we are seeing quite a degree of reluctance from customers to take up the offer given the associated disruption, and we will need to factor this in to our long-term strategy.

Research and innovation update

As we are progressing with our prioritised lead replacement programme, we are learning more about customer attitudes and preferences, and how best to tackle this issue over the long-term. We will share this learning with other companies, stakeholders and regulators, and take it into account as we develop our long-term plans.

Summary and outlook for PR24

It is clear that the current rate of lead pipe replacement is insufficient to achieve zero lead pipes by 2050. We will be seeking increase the pace of delivery in this area in the next AMP, focusing our efforts on areas of significant poverty, and aiming to start by bringing about 'lead free water supply zones'.

We will work closely with the DWI, the Welsh Government and other stakeholders as we refine our approach and develop our investment plans for 2025-30 and beyond in this area.

7

**STRATEGIC RESPONSE 7:
WORKING WITH CUSTOMERS
AND COMMUNITIES**

We will work with customers and communities to co-create solutions, share knowledge, and support initiatives which reduce water use, prevent sewer abuse, and provide wider benefits for communities and the environment.

Latest evidence

Since Welsh Water 2050 was published, the prominence of the Environment, Social and Governance agenda has grown significantly. The latest UKCSI report from the Institute of Customer Service (July 2021) states that organisational purpose is even more critical to success, with environmental and social impact increasingly relevant to an organisation's customer proposition. The Edelman Trust Barometer 2021 reported that people now expect business to fill the void left by government when it fails to fix societal problems, and that CEOs should take the lead on change.

There are also opportunities as public awareness of environmental issues grows and their appreciation of the natural environment increases.

Our response

We are continuing with our longstanding education and customer engagement programmes to raise awareness of the service we provide and the role that customers themselves can play in ensuring a sustainable and cost efficient service. Since 2017, we have made good progress in increasing customers' familiarity with the company, and recognition of our 'not for profit' status has grown significantly. We now plan to go further and take a more proactive role in communicating the contribution we make on environmental, social and wellbeing issues.

The pandemic posed a huge challenge to the business, but close working relationships with customers and communities, as well as a network of over 300 partner organisations, helped us to respond quickly and effectively. We were forced to move many of our education, engagement, and consultation activities online, facilitating new ways

of reaching communities and in many respects, improved ways of working.

Research and innovation update

We have been developing new digital services, and have involved customers closely in their design and implementation. We are also working with our Customer Challenge Group on the creation of regional advice hubs for customers.

We have also been expanding our innovative 'Resilient Communities' approach, even during the pandemic. During 2020 and 2021 we implemented the approach in Rhyl and in Rhymney/Bargoed, and using online services we believe we have had at least as much impact as the first Resilient Community of Rhondda Fach. We plan to initiate another Resilient Community project in Newport in 2022.

Summary and outlook for PR24

This Strategic Response describes how we already work with customers and communities on an ongoing basis, and as such is not expected to require significant new investment at PR24. Such engagement helps us to address wider challenges in pursuit of our 2050 goals. This approach is likely to become even more important as customer expectations change, and as we seek to reduce both costs and carbon emissions. We must continue to develop our customers' sense of stewardship of water resources and the environment, and demonstrate that in the end Welsh Water is their water service.

8

**STRATEGIC RESPONSE 8:
ENSURING AFFORDABILITY
OF SERVICES DELIVERED TO
CUSTOMERS**

With inequality, debt, and poverty on the rise we aim to ensure that our services remain affordable for all customers: both in terms of average bills and for those on social tariffs. We will ensure that we continue to provide the best service in increasingly innovative and efficient ways and pass these savings on to our customers.

Latest evidence

According to the Office for National Statistics, income inequality increased by 2.2 percentage points in the 10-year period leading up to 2020. At 36.3%, the 2020 figure is the highest since 2010. In Wales, 31% of children were living in relative income poverty in 2017 to 2020, an increase on the previous three years. The figure for working-age adults has remained steady but is still above that seen for other UK countries.

The impact of the pandemic on household incomes is not yet fully clear. Our own research indicates that many people feel the worst is yet to come. Concern is highest amongst those on lowest incomes. The Bevan Foundation warned of rocketing household debt due to Covid-19 (Debt in the Pandemic, September 2021). A true 'cost of living crisis' has emerged in 2022, with inflation on the increase and a steep rise in energy bills.

Our response

While most customers believe that bills are affordable and represent good value for money, we are acutely conscious of the financial circumstances of our customers, particularly during and after the pandemic. We will continue to engage with customers to assess their priorities and the forecast level of bills over the long term. We must also ensure we remain attractive to investors, so that we minimise financing costs. Our ambition is to bring the level of the average bill down in real terms by 2050.

For customers who struggle to pay, we have an industry leading 'social tariff' which means a lower bill for eligible customers and fewer unpaid bills than would otherwise be the case. As of end November 2021 147,000 households were in receipt of financial assistance from Welsh Water.

Research and innovation update

In 2021 the Consumer Council for Water led an independent review into the affordability of water on behalf of the UK and Welsh government. Its proposals included moving to a single social tariff for England and Wales. We are engaging closely with the Welsh Government as it considers the recommendations.

Our own customer research in 2021 showed no evidence of an increase in concerns about the affordability of bills, even against the backdrop of the pandemic. Customers support additional investment to address long-term risks such as climate change, even if that means a modest increase in bills.

Summary and outlook for PR24

Welsh Water 2050 describes the long-term challenges facing the business, and this review confirms the need for investment to ensure we deliver on our commitment to create a resilient business over the long-term. Ofwat has recognised the significant cost pressures facing the industry at PR24, which could result in higher bills. But we cannot take for granted that customers can afford to pay their water bills. As we prepare our plans we will discuss the difficult trade-offs with customers, as well as with government and other stakeholders, paying particular attention to less well-off customers.

Whatever the pace of investment to 2050, we will continue to drive cost efficiency through research, innovation and effective partnerships.

9

**STRATEGIC RESPONSE 9 :
SUPPORTING CUSTOMERS IN
VULNERABLE CIRCUMSTANCES****Purpose of Strategic Response:**

We need to use data effectively, provide personalised customer service and work in partnership with other service providers to give appropriate and effective support to customers in vulnerable circumstances.

Latest evidence

As described in Welsh Water 2050 vulnerability is not just about customers' financial circumstances or their age. It is complex and multi-layered, and can be a temporary or permanent state. The Covid-19 pandemic represents by far the biggest change in the level and incidence of vulnerability over the last five years. There is evidence of increasing vulnerability across multiple dimensions, including unemployment, debt, poverty, as well as both mental and physical health. The extent to which these will return to normal as we emerge from the pandemic is not yet clear.

Beyond the pandemic, those who have been hardest hit by extreme weather, such as the floods of February 2020, have often been some of the most vulnerable communities.

Our response

Our support to vulnerable customers involves a portfolio of initiatives, working with partners, not just on affordability of bills, but targeted support during operational incidents, and tailored communications.

Since 2018 we have grown our network of partners to around 300 different organisations to increase our support to vulnerable customers. We added shielding customers to a temporary Priority Services Register, put specialist support teams in place and increased our virtual presence in communities.

We are also participating in Project JIGSO which is an initiative to establish a multi-agency information sharing platform to improve planning and response to major incidents by the responder community, with the aim of protecting vulnerable people who are disproportionately impacted during events of this nature.

Research and innovation update

One of the key challenges is identifying customers in need of additional support. We have made good progress in working with other utilities and service providers to share data. In 2022 we will start sharing data with the Department of Work and Pensions and we are currently investigating new data sharing arrangements with Scottish Power, local authorities, and a number of health boards, while remaining compliant with privacy and data protection regulations.

Summary and outlook for PR24

The costs of implementing measures to support customers in vulnerable circumstances are relatively small, even over the long-term. The emphasis, therefore, is ensuring staff have the training and support they need, as well as the right internal culture, to provide appropriate and well targeted support. By 2025 we will have obtained the British Standard for Inclusive Services, ensuring that teams across our business are able identify and respond to customers in vulnerable circumstances. This is incredibly important as we anticipate that the demand for this kind of support will continue grow in the coming decades.

10

**STRATEGIC RESPONSE 10:
ADDRESSING OUR 'WORST SERVED'
CUSTOMERS**

Faced with increasing customer expectations for a good service at all times, we will address the longstanding service complaints of 'worst served customers' to ensure that everyone receives an acceptable level of service. We will not charge customers when service does not meet our service standards.

Latest evidence

We define 'worst served' customers as those that suffer repeated service failures such as water supply interruptions or sewer flooding. Those in this category are often in isolated rural communities where the cost of resolving the problem is uneconomic. Climate change is exacerbating the problem, as a significant proportion of these are customers who suffer repeat flooding, often following heavy rain. Progress is therefore linked to implementation of surface water removal schemes – see Strategic Response 15.

Our response

Currently we are limited in what we can do to resolve issues faced by 'worst served' customers, due to concerns about cost. We will engage with stakeholders for guidance as to how to resolve the most difficult issues to our customers' satisfaction. Meanwhile, we are implementing a WaterFair scheme to ensure that customers who fall into the 'worst served' category for water or for wastewater are not charged for that service.

Research and innovation update

Over time we are hoping that new technology will emerge that will facilitate cost effective capital solutions to resolve 'worst served' issues, such as package pumping stations for customers with low pressure issues. The new Drainage and Wastewater Management Plans will provide valuable information to support decision-making around reducing flooding risks for those worst affected.

Summary and outlook for PR24

We are continuing to drive down water supply interruptions and flooding incidents, which will benefit the number of 'worst served' customers. On the other hand, climate change is working the opposite way, tending to push up the number. Resolving specific issues that affect certain very small communities is a challenge, given the high cost of doing so, the wider pressures on the investment plan, and the need to maintain affordability. We remain committed to ensuring an acceptable level of service for all customers, but the extent to which these individual issues can be addressed in the near term will have to be assessed in the context of the wider investments we will be required to make in the interests of all our customers.

11

STRATEGIC RESPONSE 11: EMPLOYER OF CHOICE

With an ageing population, an increasing shortage of technically skilled employees and increasing demand for more flexible approaches to working we will need to continue to be an employer of choice attracting, developing and inspiring people from a diverse range of backgrounds, to deliver an excellent service for our customers.

Latest evidence

The long-term trends identified in Welsh Water 2050 remain valid, including the importance of maintaining and improving the standard of customer service delivered by our employees. The competition for skilled workers has become acute as the economy emerges from the Covid-19 pandemic, with recruitment for specialist roles becoming a serious challenge.

The pandemic also brought about a rapid shift in working patterns and practices for all office-based staff, and put significant additional pressure on operational teams. The more general move towards home and remote working in the economy raises the issue of how best to attract the best people whatever their location. It has also created opportunities to work differently and more efficiently.

Our response

We have made significant progress in implementing flexible ways of working in response to COVID-19, and through the Smarter Ways of Working programme we will build on this to create the collaborative and flexible working environments that our colleagues will expect.

We will continue to build on the technical training centres of excellence in our operational areas, moving into semi-professional capabilities, such as quantity surveying and estimation.

Beyond the pandemic we are progressing with a portfolio of projects to ensure we remain an Employer of Choice in Wales. These include our Inclusivity Strategy, which aims to ensure that we reflect the diversity of our customer base in our workforce. We also have our health, safety and wellbeing plans, and a new online human resources services platform.

In October 2021 our Board approved a five year strategy to becoming recognised as the Best Employer in Wales. This has four elements – a highly skilled workforce, an engaged workforce, effective systems and processes, and an attractive employer.

Research and innovation update

We capture the views of colleagues every year through the Employee Engagement survey, which yields valuable insights and identifies areas where intervention is required to reinforce engagement and the motivation of our workforce.

Summary and outlook for PR24

Being Employer of Choice is fundamental to overcoming the long-term challenges ahead and meeting our 2050 objectives and the supporting plans will be a key element of our plans for PR24. It is important that we continuously challenge ourselves to meet the highest standards and find new ways to ensure our teams are motivated and resourced to deliver great performance for our customers and the environment.

12

**STRATEGIC RESPONSE 12:
LEADING EDGE CUSTOMER SERVICE**

Changing customer expectations, the digital revolution and demographic and lifestyle change are all leading Welsh Water to further develop our customer service culture. We will harness technological change to provide a personalised service for customers through their preferred contact channel.

Latest evidence

The Institute of Customer Service (ICS) has examined the evolving skills and capabilities organisations need to deliver the experience that customers expect (Working with a Purpose, 2021). This highlights that we have to continue to 'move with the times' if we are to retain our strong position on customer satisfaction.

Customer expectations of the standard of service of organisations are continuing to rise. The availability of 'same day' online ordering services and the normalisation of 'tracking' of your parcel or your taxi are examples of this. There is evidence of decreasing tolerance for anything less than excellent service. The availability of digital services is a given.

While customers do not put us in the same category as online retailers or other private service providers, we need to stay in touch with those at the frontier of change. Social media is giving customers the opportunity to express concerns directly, and complaints can rapidly gain attention online. The online campaigns around river pollution and CSOs are examples of this.

Our response

In this rapidly moving area it is a challenge to plan for more than a few years ahead. What is constant is our focus on embracing a customer-led approach, listening to customers, using data to understand needs and priorities, and providing a personalised service. In recent years we have introduced an online My Account service, video calling to triage customers' operational issues, progressed with automation of key customer transactions, and implemented online tracking for engineer visits, among other initiatives.

Research and innovation update

We use innovative customer engagement techniques as part of our ongoing research into customer needs and priorities, and will continue to exploit opportunities in data analytics and artificial intelligence to improve customer service. Use of technology and IT has accelerated during the pandemic. Trials of a 'video triage' system whereby customers can show us a problem on video without needing to send an engineer are ongoing. We can also now deliver water efficiency audits virtually to help customers save water and money.

Summary and outlook for PR24

We recognise that the highest performing companies in the economy are ahead of us in terms of digital transformation. But we also recognise that not all transactions can be digitised, and for many of our customers it is important to retain the human to human interaction. We will continue to invest in technology, at a measured and affordable rate, to ensure we retain high levels of customer satisfaction, while ensuring the diverse needs and preferences of customers are met.

13

**STRATEGIC RESPONSE 13:
SMART WATER SYSTEM
MANAGEMENT**

With the opportunity to capitalise on technological advances we will improve the service performance and resilience of our assets through remote sensing, data analysis, and automation, thereby solving problems before they impact our business or the environment.

Latest evidence

We have seen rapid technological progress in the last five years, which poses a challenge for investment and affordability as the rate of replacement of our operational technology (OT) assets and networks accelerates. The PSTN network will be discontinued by 2025, and 2G and 3G probably by 2030, which will inevitably bring additional costs to upgrade our assets.

The regulatory landscape around OT infrastructure has also changed since 2017, with the adoption by the UK of new European regulations on critical national infrastructure, and the NIS (network and information systems) Directive. This currently applies to water infrastructure only, but it could be extended to wastewater assets in the future.

Cybersecurity is also a real and growing threat. We have not yet seen a major cyberattack on a UK utility service, but they have been documented elsewhere. As services and operations become more digital and 'smart' to improve performance and efficiency our vulnerability to cyberattacks is likely to increase.

Our response

In the short-term, we are implementing a range of measures to take advantage of the opportunities provided by the rapid pace of change and innovation described above, while managing the associated risks. Examples include Network Event and Anomaly Detection (NEADS) which can help predict bursts, and the Network Operational Control System (NOCS), which includes production planning.

In the longer-term we can expect smart meters to become a cost beneficial and effective way of improving network management, providing a wealth of information on usage and network operation. While the technology and the infrastructure are not yet sufficiently advanced, we will plan for the expenditure and implement trials to prepare for the future.

The cybersecurity threat landscape is constantly evolving. We remain vigilant to the increased threat level, and are continuing to evolve both our cyber skills and protection technologies accordingly.

Research and innovation update

Some of the innovations we are implementing are described above, and there is a great deal of research taking place on the use of technology to improve the operation of our networks, mostly with and by partners. For example, we are members of the Smart Water Networks (SWAN) network, a global body that is exploring smart technologies for the water industry.

Summary and outlook for PR24

Keeping up with the opportunities created by technological change, and the investment requirements generated by regulatory change, is a continual challenge for the business. There is significant investment involved, particularly as older OT infrastructure is discontinued, requiring replacement, and upgrading of our assets. The threat of cyber attack will also be continually changing as perpetrators seek out new vulnerabilities that they can exploit and we will need to invest in new defences. We will be assessing the progress we need to make in relation to looking closely at these issues as we develop our PR24 Business Plans.

14

**STRATEGIC RESPONSE 14:
SUPPORTING ECOSYSTEMS AND
BIODIVERSITY**

Biodiversity faces threats including habitat loss, fragmentation and over-exploitation. In the longer term, temperature and changed rainfall patterns will also impact biodiversity. We will look for ways to help nature, enhance biodiversity and promote ecosystem resilience while we carry out our water and sewerage activities.

Latest evidence

Recognition of, and evidence for, the nature emergency has grown since Welsh Water 2050 was published in 2017. A 'Nature Emergency' was declared by the Senedd in July 2021 in view of statistics on the decline of species in Wales. The second State of Natural Resources Report (SoNaRR) in 2021 said that only 44% of rivers in Wales are achieving 'good' ecological status (tinyurl.com/yj7dryha) and most environmentally designated land is not in favourable condition.

This is being driven by several long-term trends, and compounded by climate change which impacts species distribution and abundance, habitat use and the timing of seasonal natural events.

There is a growing emphasis on Welsh Water's environmental responsibility in public discourse, as an environmental organisation and a significant landowner. Regulatory requirements are likely to become more stringent in terms of climate change mitigation and water quality in particular.

Our response

We are continuing to reduce our environmental footprint, whether in relation to nutrients in rivers, carbon emissions, or the impact on biodiversity of our capital programmes. We are seeking wherever possible to take a joined up approach with partners and stakeholders to drive solutions where we use all available resources together most effectively for environmental and biodiversity benefit. The key constraints are funding, and a lack of data and clear policy to support the most effective nature-based interventions.

Research and innovation update

A key challenge is the current lack of robust data on the state of biodiversity on our land holdings, particularly in relation to specific sites and species, something which we are seeking to address. We are working with NRW to clarify requirements on landowners in relation to Habitats Directive designated sites to move them into favourable condition from 2025.

However, the evidence base we do have is improving. For example, there is greater clarity on the impact of Invasive Non Native Species (INNS) on diversity.

We are tracking our biodiversity outcomes through our regular 'Making Time for Nature' reports, the next of which will be published in 2022 so as to support our PR24 planning.

Summary and outlook for PR24

In AMP8 we will, subject to funding, continue to leverage our biodiversity resources with those of NRW and Welsh Government as 'Team Wales'. To-date we have leveraged over £15m of available funding from third parties to improve river habitats and water quality on multiple SAC rivers. We also hope to leverage funds and resources from other sources, including the Welsh Government's new land use reforms and payments for public goods such as biodiversity. We will be working with NRW to ensure that appropriate and specific measures are included in the requirements set out in the National Environment Programme, aligned with the fulfilment of our functions.

15

STRATEGIC RESPONSE 15: USING NATURE TO REDUCE FLOOD RISK AND POLLUTION

Confronted with urban creep due to demographic change and increased intensity of rainfall due to climate change, Welsh Water is proposing to reduce the risk of sewer flooding and pollution through the development and implementation of sustainable urban drainage systems. We will aim to install sustainable drainage systems in cities and major conurbations (Swansea, Cardiff, Newport, Wrexham, Chester) in partnership with local authorities, of highest risk.

Latest evidence

As detailed elsewhere, we are already seeing the impacts of climate change, and this is significantly affecting the scale and frequency of sewer flooding. Urban creep, a lack of control over the entry of rainwater, and an expansion in impermeable areas is steadily increasing the volume of rainfall which is collected into our combined sewage systems.

Since 2017 the regulatory and political context has evolved rapidly in this area. The introduction of mandatory Drainage and Wastewater Management Plans (DWMPs) as the basis for long-term planning is a welcome development. New standards are being developed in Wales, mirroring (in part) the Environment Act (2021) in England, with sustainable drainage systems now mandatory on new housing developments in Wales.

Most significantly, perhaps, the issue of CSO use has emerged as a major public and political concern.

Our response

We will consult on the first cycle of DWMPs in June 2022. This will enable a dialogue with customers and stakeholders on the pace and prioritisation of investment in this area. Sustainable urban drainage systems are likely to remain part of our long-term plans, but there are no major schemes in the current AMP period on the grounds of affordability.

We led the sector in installing monitors on CSOs, and remain committed to data transparency. Meanwhile we are making significant additional investments in resolving issues with CSOs.

Research and innovation update

A key focus is our work with partners to develop a methodology for valuing the wider natural, social, and human benefits of sustainable drainage schemes. This will help to weigh all relevant benefits appropriately for future planning purposes, including those to biodiversity and wellbeing, against the financial costs.

We are also harnessing the latest research of partners and other institutions, such as the work of UKCIP on climate change adaptation, as we progress DWMPs with our partners.

Summary and outlook for PR24

The immediate focus is on the impact of CSO discharges, but this is but one contributor to water quality in our rivers. We support the approach taken by Welsh Government and NRW to develop a comprehensive plan to address all the constituent elements of this key environmental issue, and we will contribute appropriately to the agreed approach. The outcome of AMP8 will be heavily dependent on the priorities reflected in the next regulatory National Environment Programme (NEP). While we are improving our ability to value the wider benefits of nature-based schemes such as sustainable drainage, we will also need the support of regulators to facilitate their wider use. Implementing sustainable drainage in urban areas, alongside reforming responsibilities for drainage and controlling the entry of plastics and rainwater into sewers, is likely to remain the right approach over the long-term, but will be subject to affordability constraints.

16

STRATEGIC RESPONSE 16: CLEANER RIVERS AND BEACHES

With increasing pressure on the natural environment from population growth, changing land use, climate change and new sources of pollution we will improve our wastewater assets to do our part to help achieve 'good' ecological status for our rivers, lakes and coastal waters.

Latest evidence

As in other areas, climate change poses a major challenge to our efforts on river and coastal pollution. Urbanisation and the growth of paved areas looks set to continue. The frequency and intensity of heavy rainfall events is already increasing, raising the risk of more frequent CSO discharges to prevent sewer flooding. We are working closely with NRW to ensure investment is prioritised on the basis of minimising the environmental impact of pollution where it occurs, while ensuring we are complying with legal permits. Welsh Water's 'CSO Roadmap' setting our approach is expected to be published shortly.

River condition is also affected by the growing problem of agricultural and industrial pollution, particularly with respect to nutrients. New water quality regulations could address the problem, but will require adequate monitoring and enforcement. We are expecting tighter targets for some rivers beyond Water Framework Directive regulations. In addition, a number of emerging contaminants have been put on 'watch lists', which compound the challenges and could drive major additional investment at treatment works, if not adequately controlled at source.

Our response

Our long-term plans are being developed through formal Drainage and Wastewater Management Plans (DWMPs), which will be published for consultation in their first iteration in June 2022. In terms of achieving 'good' ecological status, we expect to improve 200km to 'good' status by 2025, where our assets are the primary cause of poor water quality. But our 2050 target of improving 1500km of river to that designation will depend heavily on the emergence of a well coordinated and resourced approach across stakeholders and regulators, backed up with the forthcoming agriculture act.

80% of Wales' coastal bathing waters are at 'excellent', but there are a few areas where we need to upgrade our assets to maintain and improve this. These improvements are likely to focus on improving water quality to enable the export of shellfish products to the European Union.

Research and innovation update

Our primary research focus has been on installing monitors (Event Duration Monitors) to gather data on when and how our CSOs are operating. We are also installing monitors to better understand the peak flows being treated by our wastewater treatment works. We also need better monitoring of water quality upstream and downstream of all our wastewater assets in order to improve our understanding of their impact.

In terms of innovation, we are making the case for regulatory reform to adopt more novel and effective approaches to permitting around discharges to river, such as catchment load or seasonal permitting.

Summary and outlook for PR24

We will be investing £250 million during 2020-25 in line with our current National Environment Programme, but with increasing agricultural pollution and the impact of climate change on CSOs, our 2050 objective looks increasingly challenging. Significant investment in environmental monitoring and new ways of regulating and working collaboratively will be needed in order to get back on track. The priority for PR24 is to continue the steps we are taking to address concerns about the operation of CSOs and their impact, as part of the wider issue of river water quality.

17

STRATEGIC RESPONSE 17: PROTECTING OUR CRITICAL WASTEWATER ASSETS

Faced with an increased risk of disruption, for example from an increase in severe weather as a result of climate change, and reduced customer acceptability of pollution events, we will improve the resilience of our critical wastewater assets, which have high environmental and customer impacts of failure.

Latest evidence

We are seeing an increase in short duration severe summer rainstorms as well as extreme winter storms. These affect not only our wastewater assets directly, but also other infrastructure on which we depend such as power and roads.

Other threats to critical assets include cyberattacks, terrorism and physical condition. Cyberattacks are evolving quickly and have already impacted water utilities abroad. There are also heightened risks of resource disruptions following Brexit.

Our response

We are taking a risk-based approach, dealing with the most critical assets where there is a high consequence of failure. Our list of critical assets is currently being reviewed, covering treatment works but also pumping stations and critical mains in sensitive areas. We are implementing a number of schemes in the current period to improve resilience against power outages and we are updating our business continuity plans. In the case of the large number of our treatment works in river valleys, the optimum and most cost-efficient strategy may be to equip them to recover quickly following flooding, rather than attempting to protect them all against floods.

Research and innovation update

Most of our research in this area is about improving our understanding of the risk to our assets. For example a major review of the risk to wastewater treatment works from coastal erosion is underway. As on the clean water side of the business, we are taking account of the recommendations of the NIC's National Infrastructure Assessment (November 2021) and will engage with the National Infrastructure Commission for Wales on the interdependencies with other key infrastructure such as power and transport to understand the system implications.

Summary and outlook for PR24

River and coastal flooding will increase in risk with climate change and the increasing frequency of severe storms. We are reviewing flooding risks and developing a long-term plan to protect critical assets on a prioritised basis, the early results of which will be reflected in our PR24 plans. More generally we will implement an ongoing programme of security upgrades and other measures to ensure rapid recovery of service following incidents.

18

STRATEGIC RESPONSE 18: ACHIEVING NET ZERO CARBON EMISSIONS BY 2040 AND PROMOTING A CIRCULAR ECONOMY*

Faced with a changing climate and increased energy costs we aim to reduce our total carbon emissions by 90% by 2030 and achieve carbon neutrality by 2040. We will also maximise opportunities to reuse treated water and other potentially valuable natural materials, contributing to the circular economy in our local region.

* We have revised the text of this Strategic Response to reflect the enhanced focus on net zero, as explained below.

Latest evidence

Public awareness of, and concern about, climate change has increased rapidly over the last five years. The need to establish carbon neutrality has equally risen rapidly up the political agenda, and the Welsh Government has set a target of net zero by 2050, with interim targets for 2030 and 2040.

In terms of the circular economy, new regulations are being considered which could affect the recycling to land of bioresources (treated sewerage sludge), which could have major implications for our operations, not least in terms of carbon emissions if we are forced to move to incineration as an alternative.

Our response

In 2021 we set out our plans for our carbon journey, targeting net zero by 2040 on both operational and embedded carbon, with a 90% reduction in total emissions by 2030. Our energy use is already carbon neutral, with the exception of our transportation fleet. We will find ways to offset carbon using our land holdings. Our level of energy 'self sufficiency' is expected to reach 35% by 2025.

We are considering plans for tackling carbon emissions from our vehicles as battery technology improves and the infrastructure to support electric vehicles improves.

We are engaging with government and regulators on new regulations affecting the recycling of bioresources, emphasising the benefits of recycling to land and the need to consider the impact of alternative solutions, such as incineration, on the environment. We are also heavily engaged in research and technology development.

Research and innovation update

A major focus of research in this area is carbon emissions from our capital investment programme and from wastewater operations. We started measuring the 'embedded carbon' in our capital programme in 2020, and the proportion that is assessed is growing rapidly. In relation to wastewater operations it now appears that, as an industry, we have historically underestimated significantly the 'fugitive emissions' from wastewater treatment. We have installed devices in trial wastewater treatment works to improve our understanding of the scale of this problem and thereby develop solutions with partners.

In terms of the circular economy, we are anticipating enhanced techniques for the recovery of nutrients and other products from bioresources to emerge in the next 3-5 years. We may be able to find uses for the biogenic CO₂ that is emitted in our processes, either as a product in itself or employed in 'biorefinery' processes to make other products. We are also looking at the potential to generate biohydrogen from anaerobic processes, though this is a longer-term prospect.

Summary and outlook for PR24

Carbon neutrality is likely to be one of the major themes of PR24. We now have a well developed plan for carbon reduction, and will assess how much can be delivered from 'business as usual' expenditure, and where additional investment is needed. We will continue to explore the potential of the broader circular economy and the opportunities from innovation to deliver more carbon efficient capital investment solutions.

SUMMARY: REVIEW OF STRATEGIC RESPONSES

CONCLUSIONS – STRATEGIC RESPONSES REVIEW

Despite the evidence that the future challenges are evolving and intensifying, we believe our 18 Strategic Responses remain the best way of ensuring we can continue to provide a resilient and sustainable service over the long-term. There has, however, been a shift in emphasis in some of the Strategic Responses compared to five years ago. For example, Strategic Response 18 covers both the circular economy and carbon emissions reduction, but the latter has grown in prominence and urgency over the last five years. To respond to this, in 2021 we published our 'Journey to Net Zero' plan, and have set ambitious targets for 2030 and 2040. To reflect this greater priority placed on net zero we have amended Strategic Response 18 to: "Achieving net zero carbon emissions by 2040 and promoting a circular economy".

		STRATEGIC RESPONSES	STATUS AND COMMENTARY	
DRINKING WATER	1	Safeguarding clean drinking water through catchment management	On track. Approach still needed to tackle emerging contaminants etc.	✓
	2	Enough water for all	On track. WRMP and dam maintenance form key future investments.	✓
	3	Improving the reliability of drinking water supply systems	On track. Growing need for measures to create greater resilience.	✓
	4	Protecting our critical water supply assets	On track. Risks growing. Long-term programme in development.	✓
	5	Achieving acceptable water quality for all customers	At risk. Acceleration of mains replacement and innovation needed.	⚠
	6	Towards a lead free Wales	At risk. Need increase in rate of replacement and new approaches.	⚠
CUSTOMERS & COMMUNITIES	7	Working with customers and communities	On track. Importance increased owing to impact of pandemic.	✓
	8	Ensuring affordability of services delivered to customers	At risk. Cost of living crisis. Prospect of future bill increases.	⚠
	9	Supporting customers in vulnerable circumstances	On track. Importance increased owing to impact of pandemic.	✓
	10	Addressing our 'worst served' customers	At risk. Climate change. Interventions disproportionately expensive.	⚠
	11	Employer of choice	On track. Challenging labour market. Changing work practices.	✓
	12	Leading edge customer service	On track. Rapidly moving picture, customer expectations rising.	✓
	13	Smart water system management	On track. Opportunities but also challenges of rapid OT change.	✓
ENVIRONMENT	14	Supporting ecosystems and biodiversity	On track. Opportunities to do more, with funding alongside partners.	✓
	15	Using nature to reduce flood risk and pollution	At risk. Water quality a key concern requiring sustainable solutions.	⚠
	16	Cleaner rivers and beaches	At risk. Need to work collaboratively. Increased investment needed.	⚠
	17	Protecting our critical wastewater assets	On track. Risks growing. Long-term programme in development.	✓
	18	Achieving net zero carbon emissions by 2040 and promoting a circular economy (REVISED)	On track. Ambitious net zero plan - will require investment.	✓

As shown in the above summary, our progress across the 18 Strategic Responses is uneven. This is to be expected given that they vary significantly, with some requiring substantial investment to achieve an improvement in performance, and others requiring a continuing 'business as usual' focus on maintaining high relative standards. But for a subset of the Responses we judge that we are not currently making progress rapidly enough to achieve our ambitions for 2050, and these areas are considered to be 'at risk'. We will take these areas forward into discussions with stakeholders on the priorities for PR24, and into our long-term investment planning out to 2050.

The six principle areas of challenge are:

STRATEGIC RESPONSE 5: ACHIEVING ACCEPTABLE WATER QUALITY FOR ALL CUSTOMERS

'Acceptability' of water refers to incidents of discolouration, odour or taste abnormalities, measured by the number of related contacts we receive from customers. Our performance in this area lags most of the industry, with a primary challenge around discolouration from deposits accumulating in old cast iron mains pipes, which can then be released into drinking water.

This is a complex area on which we are working closely with the Drinking Water Inspectorate. They are supportive of the targeted approach we are taking, and we are achieving improvements. There are some things we can do 'upstream' to mitigate the problem, and we are maximising our effort in that area, but ultimately replacement of mains pipes is likely to be a major part of the long-term solution. This is costly,

and the main constraint is therefore affordability, which depends on the outcome of the assessment of the costs allowable by the price control process to be recovered from customer bills.

STRATEGIC RESPONSE 6: TOWARDS A LEAD FREE WALES

This is an unusual 'Strategic Response' in that it goes beyond our core functions, by replacing the customer-owned portion of supply pipes where lead is found. This investment outside our own network is part of our contribution to achieving wider societal and governmental goals, given the close association with our own duties to provide safe drinking water.

We are making solid progress in the current investment period (AMP7), despite a slow start due to the pandemic. But at the current rate of replacement we will not be able to replace all lead supply pipes by 2050. The rate of expenditure will need to increase, unless we can significantly bring down the unit cost. However, the challenge is not just about cost – as we progress we are learning about customer attitudes, about how to deliver the programme effectively alongside other customer benefits, and about how to minimise disruption to customers. We will therefore keep this Strategic Response under review, and maintain a continuing dialogue with the Welsh Government and the Drinking Water Inspectorate about the long-term aspiration.

STRATEGIC RESPONSE 8: ENSURING THE AFFORDABILITY OF SERVICES DELIVERED TO CUSTOMERS

While we continue to deliver a sector leading 'social tariffs' programme to support those customers who struggle to pay their water bills, we have to consider that our objective of ensuring the affordability of services over the long-term is at risk in the current environment. Inflation is rising rapidly and the dramatic increase in energy bills in 2022 will put domestic finances under extreme pressure for many. This will make striking the right balance between delivering the solutions required to ensure long-term resilience and sustainability, and keeping bills as low as possible, all the more important at the next price review. We are committed to work closely with government and other stakeholders to achieve this, addressing both overall affordability for customers, and the measures necessary to ensure affordability for those in financial difficulty.

STRATEGIC RESPONSE 10: ADDRESSING OUR 'WORST SERVED' CUSTOMERS

We continue to adhere to the principle that all customers deserve a good level of service, and we will work towards this goal over the long-term. At present, the disproportionate cost of solutions to address problems for very small numbers of customers is an obstacle to progress, especially in the face of wider challenges. On the wastewater service side, climate change is tending to increase repeat flooding events, and working against our target. We are, therefore, faced with making limited progress currently in this area given the investment needed to address the challenges that we face to ensuring a good service across our customer base, but we continue to engage with customers and stakeholders on striking an appropriate balance between competing priorities.

STRATEGIC RESPONSE 15: USING NATURE TO REDUCE FLOOD RISK AND POLLUTION

Our Rainscope programme in Llanelli was an early example of how to apply low-carbon, nature friendly solutions to a problem – excess surface water run-off – that would otherwise require a capital intensive solution. However, this approach takes time to develop and implement, and the costs are very significant. Our aim is to apply this same approach to other urban areas in Wales, to help adapt to the changing climate by slowing down the run-off into combined sewers during heavy rainstorm events, which can cause flooding and pollution.

We currently have no definite plans to implement this approach elsewhere, owing to the cost and the other pressures on our investment plan. We know, however, that these schemes deliver benefits beyond the primary objective of reducing run-off, including biodiversity, carbon reduction and mental health benefits. The development of an accepted method of valuing such benefits, through the 'multi-capitals' or 'natural capital accounting' approach, will help us to work with partners to build a case for such investment in the longer-term.

STRATEGIC RESPONSE 16: CLEANER RIVERS AND BEACHES

This area received enormous attention from the public, regulators and government during 2021 as concerns over the state of health of rivers across the UK grew, with the River Wye prominent among them. There are a variety of reasons why the progress we would like to see is not being made with improving river health in Wales. This is a complex area where water companies are just one of a number of important contributors to the situation, and where we are operating with imperfect information on causes and effects. However, as things stand we are not able to say that we are confident about meeting our 2050 ambition for the state of our rivers.

Tackling this issue will require significant investment, but just as importantly, an approach to the problem which is joined-up, well-informed, long-term, and focused on what matters most which is the impact on the environment. This is the approach that we are taking, working alongside the Welsh Government, Natural Resources Wales and others. We are committed to working collaboratively, both to address problems where our assets pose a risk to the environment, but also to trial more flexible regulatory approaches that facilitate the right actions and efficient delivery of outcomes over the long-term.

LOOKING AHEAD TO PR24

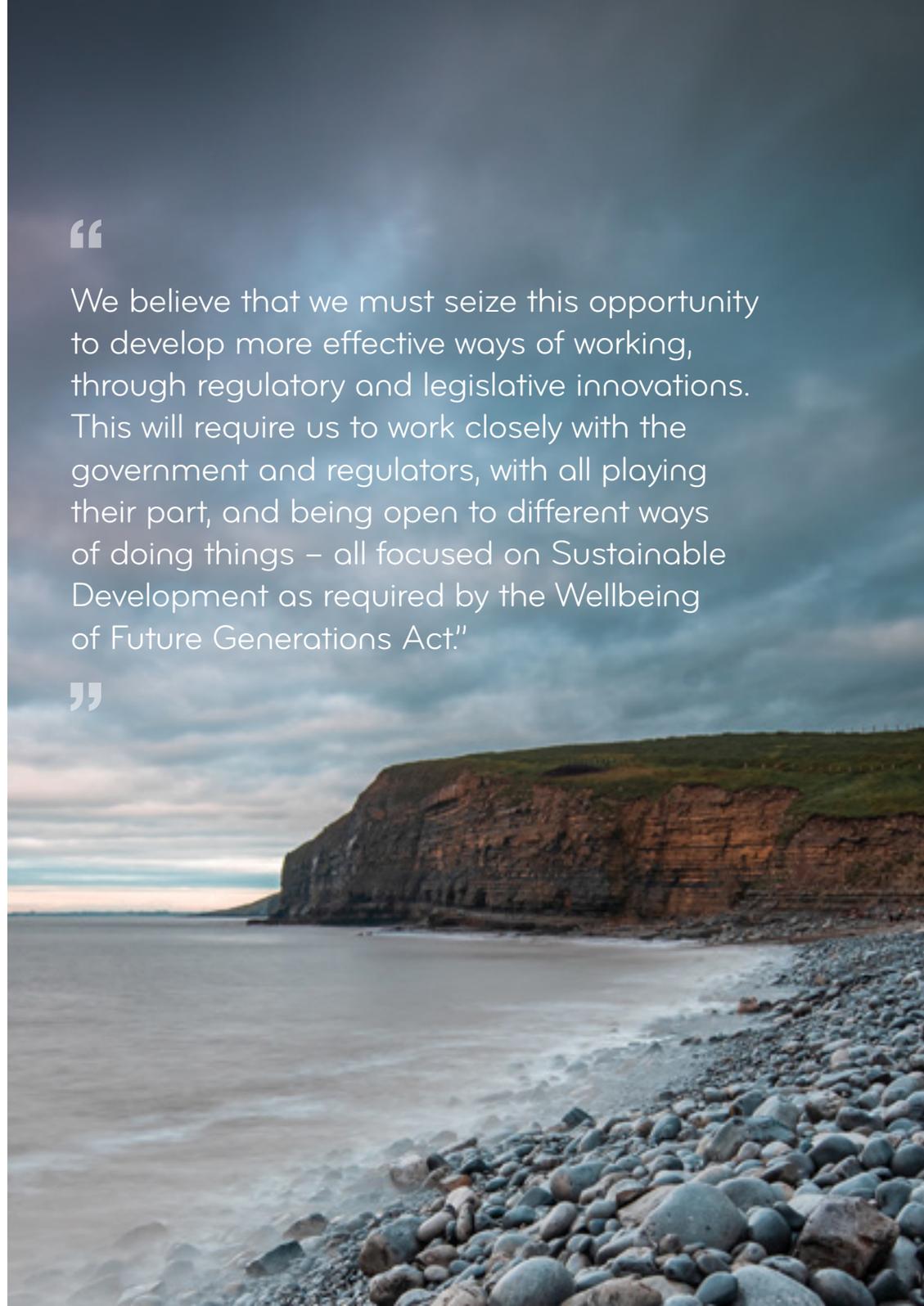
Our key conclusions in relation to PR24 are:

- Overall the rate of progress on investment and innovation needs to increase in a range of areas if we are to achieve our 2050 ambitions.
- Climate change adaptation, cutting carbon emissions, and addressing major service risks are a priority and will be among our key themes.
- We anticipate significant new investment to meet new regulatory obligations, especially in relation to environmental standards and dam safety specifications. We recognise the challenge this presents to affordability in relation to customer bills.
- Given this, all investment proposals that go forward to PR24 will be rigorously assessed for cost effectiveness, and where possibly we will aim to deliver multiple benefits from each investment. We will also maintain our drive to achieve the optimal cost-efficiency of our operational and maintenance activities, to help maintain the trust of our customers and the support of regulators.
- Effective stakeholder collaboration – with regulators, government, landowners, and other interested parties, particularly those focussed on the environment – will be essential to deliver improved outcomes in a cost-effective and carbon-efficient manner.

“

We believe that we must seize this opportunity to develop more effective ways of working, through regulatory and legislative innovations. This will require us to work closely with the government and regulators, with all playing their part, and being open to different ways of doing things – all focused on Sustainable Development as required by the Wellbeing of Future Generations Act.”

”



FINAL REFLECTIONS

It is clear from this Review that our operating environment is changing rapidly. It confirms that while a long-term strategy is vital, shocks (such as the Covid-19 pandemic) can occur with little warning, changes in relevant areas (such as public opinion or government policy) can emerge rapidly, and even acknowledged long-term trends (such as climate change) will accelerate and can have unexpected consequences. Regular review of our strategy is essential to ensure we have the information we need in order to take sound decisions on how best to achieve the long-term goals for customers and the environment.

It has also highlighted the difficult trade-offs that we face as we begin to prepare our investment plans for PR24 and beyond. Prime among these is the importance of protecting customers' ability to pay their water bills, while ensuring that we make the investment that is necessary to avoid storing up problems for future generations. While water bills have fallen in real terms over the past decade or so, we are conscious that many of our customers are under real financial pressure with the rising cost of living, and are anxious about the post-pandemic future. Recent customer research has confirmed this view, while also providing evidence that most customers would accept a modest bill increase if needed to address future challenges.

Maintaining an ongoing dialogue with customers and policy-makers is essential if we are to strike the appropriate balance between bills and future investment. Our social tariffs will continue to play a vital role in helping those who struggle to pay their bill. As the only non-shareholder utility company in England and Wales, we are absolutely focused on the long-term, and have a unique advantage that will help us to keep bills as low as possible, while also achieving our 2050 mission to become a world-class, resilient, and sustainable water service for future generations.

