

SEVERN TRENT WATER CLIMATE CHANGE ADAPTATION REPORT 2024



WONDERFUL ON TAP

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WELCOME

Climate change is the defining challenge of our time. It is often framed as a future challenge but now is the time for us to face into it – it’s already happening. Our region is seeing hotter, drier summers and warmer wetter winters with extreme weather events becoming more intense, frequent and long-lasting. These trends are projected to continue.

Tackling climate change requires a twin-tracked approach. We are committed to playing our part in reducing atmospheric greenhouse gas emissions as demonstrated by our significant progress and ambitious Net Zero plans. As important as mitigation is climate adaptation, ensuring we are resilient to the impacts of climate change now and in the future. Adaptation lessens impacts but also brings additional opportunities, as improvements to our understanding and management of risk spark technological advances and new ways of working. It also gives us an opportunity to deliver social, environmental and economic co-benefits to our region.

Water is the medium through which climate change is most acutely felt so adapting to climate change is especially challenging for water companies. Our value chain is complex with multiple touchpoints with the environment and intricate interdependencies with other sectors.

We have been assessing and managing our key climate risks for a long time. Our customers rightly expect reliable and sustainable clean water even at times of reduced availability and high demand, and it’s vital we play our part in protecting against flooding and reductions to water quality.

We recognise the importance of systems thinking along our value chain and also in terms of our interdependencies with nature, other sectors and local communities for holistic understanding and management of climate risks. We are working with others across a range of scales to dial up our readiness.

This is our 4th Climate Adaptation Report and has been produced in response to DEFRA’s request through its Adaptation Reporting Power as part of the 4th planning cycle. We are committed to contributing to national adaptation planning and providing visibility to our

stakeholders and have reported as part of the previous 3 cycles, most recently in 2021. This report shares our recent experiences and learning as well as updates since 2021 on previously stated actions (see Appendix 1 for full details). While our committed actions stop at 2030 (on account of our 5-year regulatory price review cycle), they fit within plans up to 2050 and beyond.

The next 5 years will see our biggest ever investment of £15bn into our assets, local environment and communities. Protecting our water supply (by reducing leakage by 16%, enhancing supply by over 100 ML/d and improving smart meter coverage), improving the environment (by investing £1.7bn to reduce overflow spills), and reducing flood risk (by investing over £130m to increase asset resilience of our sewer network) will ensure we are better placed to deliver for our customers in a shifting climate.

Climate models give us a strong sense of the direction of travel for our region’s climate but the challenge of adapting is made more difficult by several factors. Uncertainty in when we’ll hit certain thresholds, variability in weather from year to year and the need to spread investment to maintain fairness between generations cloud decisions of when to invest and which solutions to adopt. Complexity adds to the uncertainty. The mechanisms around most climate risks are only partly understood, facing into them requires coordinated work between organisations and sectors whose priorities and regulation are often misaligned for this purpose. Unpicking these knots is essential to ensure that we maintain strong services for our customers into the future.

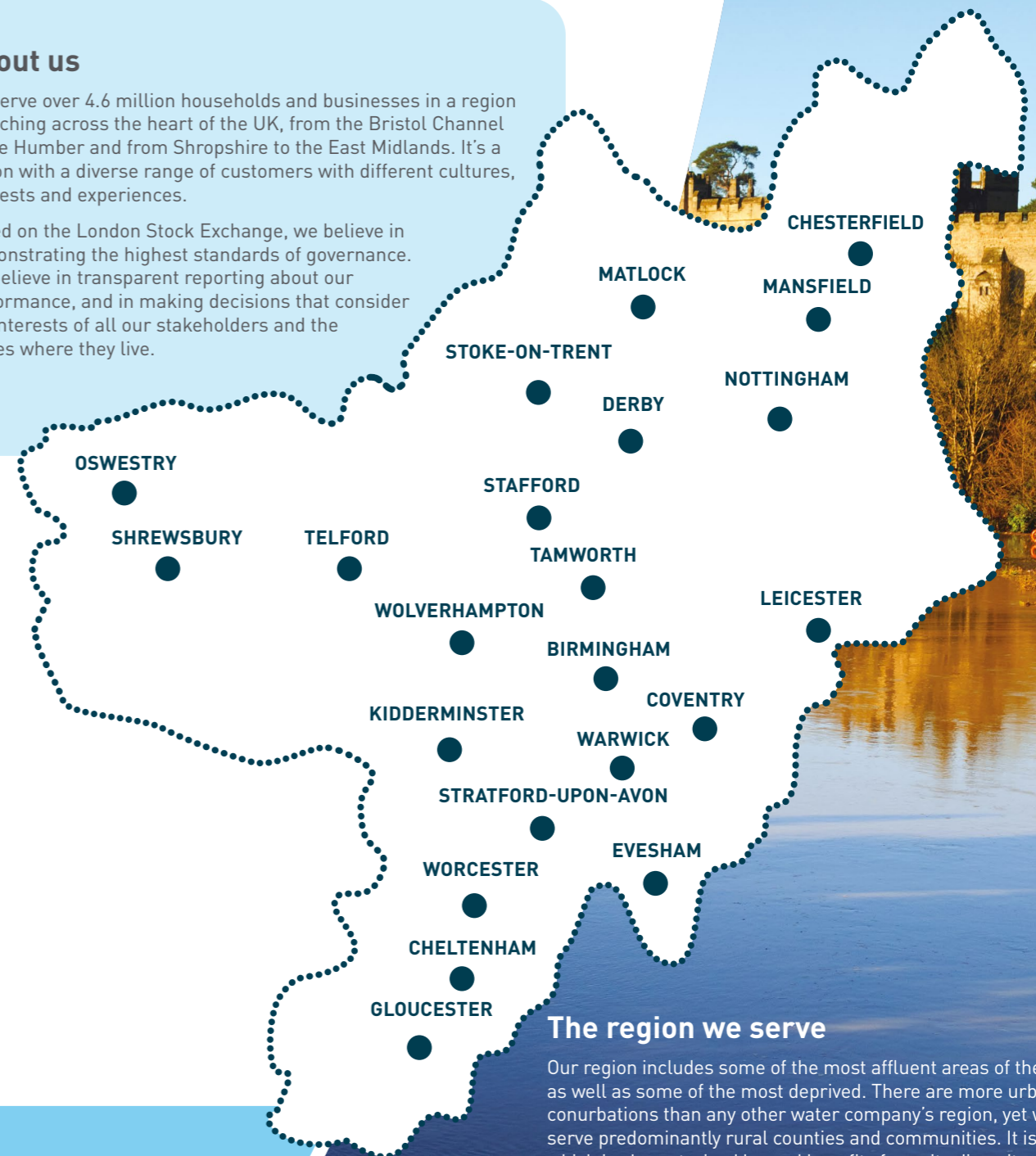


OUR PURPOSE IS TO TAKE CARE OF ONE OF LIFE'S ESSENTIALS

About us

We serve over 4.6 million households and businesses in a region stretching across the heart of the UK, from the Bristol Channel to the Humber and from Shropshire to the East Midlands. It's a region with a diverse range of customers with different cultures, interests and experiences.

Listed on the London Stock Exchange, we believe in demonstrating the highest standards of governance. We believe in transparent reporting about our performance, and in making decisions that consider the interests of all our stakeholders and the places where they live.



The region we serve

Our region includes some of the most affluent areas of the country as well as some of the most deprived. There are more urban conurbations than any other water company's region, yet we also serve predominantly rural counties and communities. It is a region which is characterised by, and benefits from, its diversity.

The region has a temperate maritime climate like the rest of the United Kingdom. This means that in general we have a cool and mild climate, with changeable weather. Our region lies at the geographic heart of England. As such, it has a climate that is essentially transitional between northern and southern England in terms of temperature and between Wales and eastern England in terms of rainfall.

As our region has very little coastline, it is less affected by the moderating effects of the sea, so its annual temperature range is more pronounced than in most parts of the UK.

This report was produced and published in 2024 in line with our 5-year plan for 2025 to 2030.

OVERVIEW OF OUR BUSINESS AND RECENT PERFORMANCE

The climate impacts our business and region in many varied ways.

As a purpose-led business we seek to improve the areas where we operate and our customers live. Here is an overview providing a sense of the scale of Severn Trent's operation and our performance in recent years.

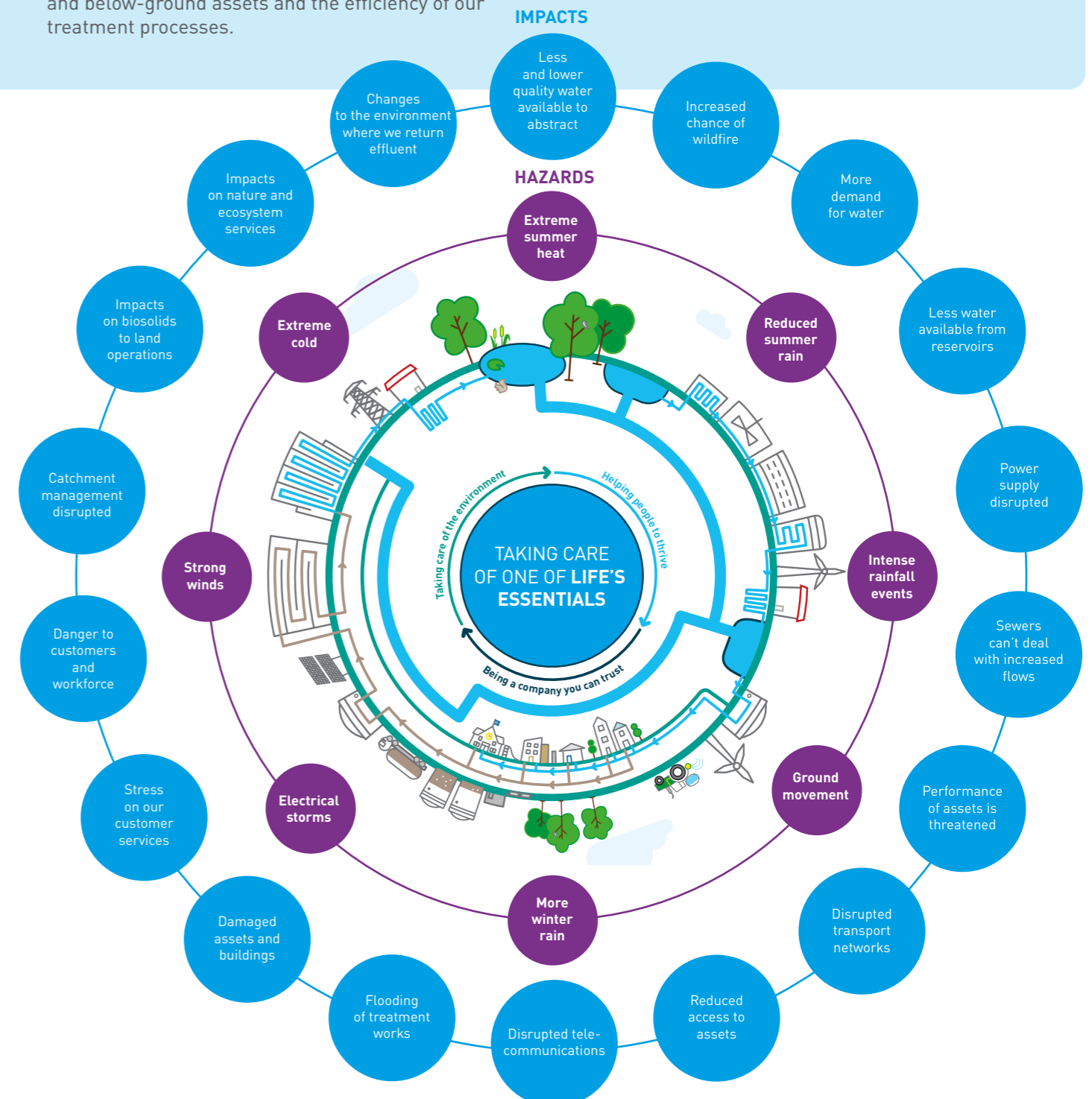
	Overview	Performance
Natural Environment 	We serve an area of 21,000 km² with more than 6,800 km of rivers .	11,554 hectares of land with improved biodiversity since 2020 Achieved 4* EPA performance for fifth consecutive year Zero serious pollution incidents in 2023 Over 823,000 trees planted since 2020
Infrastructure and services 	Raw water from 8 impounding reservoirs, 6 river abstraction sources and 104 groundwater sources Around 130 clean water and 1,000 wastewater treatment works 142,000 km of water mains and sewers 2,421 storm overflows 22 sludge treatment centres to treat bioresources 1.9 billion litres of drinking water supplied each day 3.3 billion litres of wastewater treated each day	10.8% reduction in leakage since 2020 27% year on year improvement in supply interruptions Lowest ever sewer blockage numbers in 2023/24 (28,000) Equivalent of 56% of our own energy use generated from renewable sources.
People, Communities and business 	4.6 million households and businesses served >7,900 employees	Bills just over £1 per day – one of the lowest average bills in England and Wales £2.1m donated through our Community Fund this year 100,000 hours of employability training provided to individuals in our region as part of our Societal Strategy programme 31 Farming for Catchment schemes completed since 2020 Over 400 grants for on-farm improvements that help protect water quality and biodiversity awarded through our Severn Trent Environmental Protection Scheme (STEPS) since it began in 2022 1,874 new employees started during the last year
Property 	A landholding of more than 10,000 hectares including 10 main visitor experience sites and more than 500 hectares in protected sites .	£900m of quantified natural and social capital benefits delivered by our land

HOW THE CLIMATE IMPACTS US

As a company, we're literally 'plumbed-into' the landscape. Our region's climate has a major influence on the services we provide. It affects different parts of our overall system in a number of ways:

- It shapes the environment, which we rely on to store, purify and supply water and to which we return recycled water after treatment.
- It affects the performance and lifespan of our above and below-ground assets and the efficiency of our treatment processes.

- Weather events can damage our assets and buildings and disrupt the infrastructure we use (such as power, transport and telecommunications).
- Weather also affects our region's people, communities and businesses, shaping their behaviour, wellbeing and economic activity.



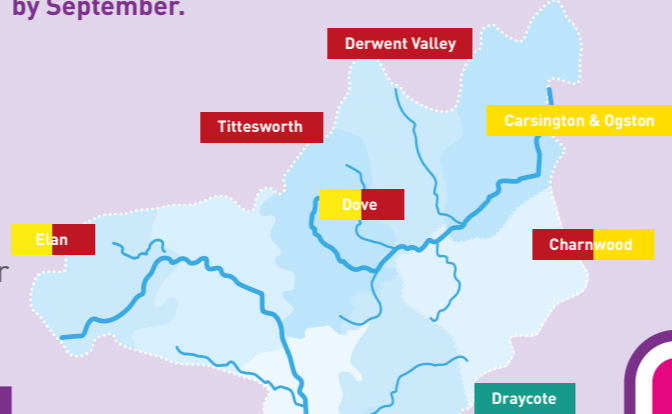
IMPACTS OF RECENT EXTREME WEATHER EVENTS

July 2022 – Record Breaking Hot Weather

The UK saw its driest July since 1911. Some catchments received less than 50% of their long-term average rainfall. For example, the Upper Derwent Valley had its driest five-month period since 1891.

Temperatures reached record-breaking levels in our region with 40.1°C recorded in Nottinghamshire.

Drought status of our reservoirs during 2022 hot weather. Our overall drought status was Level 2 drought by September.



Graph showing the relationship between high temperature (in orange) and water demand (in yellow) in 2022, highlighting the success of our customer campaign in reducing demand (in green).



Despite experiencing the hottest day on record and two prolonged hot spells alongside a very dry summer, we had fewer demand issues in 2022 than 2018. Fewer customers were without water and we remained within our daily abstraction licence at all sites across the summer.

Our lessons learned and overall review of 2022 has shown that we have become more resilient to short term demand issues and planning based on Dry Year Annual Average remains appropriate for our water resource zones.

Impacts	Actions
Demand for water increased up to a maximum of 2300MI/d in July 2022. Previous analysis suggests that demand increases by 24% when the temperature rises above 26°C.	We found and fixed leaks quicker - averaging 4.7 days in August 2022 compared with 5.7 days in August 2021. Our work was aided by new innovation technologies deployed in the most impacted areas of our region.
11 of the 14 Environment Agency ('EA') hydrological areas, including all of the Severn Trent region, reached EA Drought Status.	We used agile communication campaigns to improve water efficiency awareness rather than introducing temporary use bans. As a result of these campaigns, a 6% reduction in demand was seen in August and September, building a foundation for future extreme weather management.
In March 2022 we had 96% storage across our reservoirs but our overall drought status was in red by September 2022 and company total storage had fallen to 40%. Derwent Valley reservoir levels dropped to below 30%.	We worked to manage storage effectively and from mid-August onwards we reduced abstraction from the Derwent Valley Reservoirs to absolute minimum flows. Tittesworth achieved a new minimum sustainable flow of 8MI/d, further reducing demand on the reservoir and protecting storage.
Following this period it took until January 2023 for the reservoirs in our region to return to healthy levels (above 80%).	In September we applied for drought permits at the Derwent Valley Reservoirs (for the first time in over a quarter of a century) and on the River Churnet (for the first time since 1995).

2022

January

Exceptionally mild weather over New Year with temperatures in much of our region 10°C more than long-term average for the month

February

3 named storms (Dudley, Eunice and Franklin) in a week for the first time in the UK brought persistent heavy rain, flooding and storm surges to our region (at Severn Estuary)

July

Unprecedented heatwave (see above for detail)

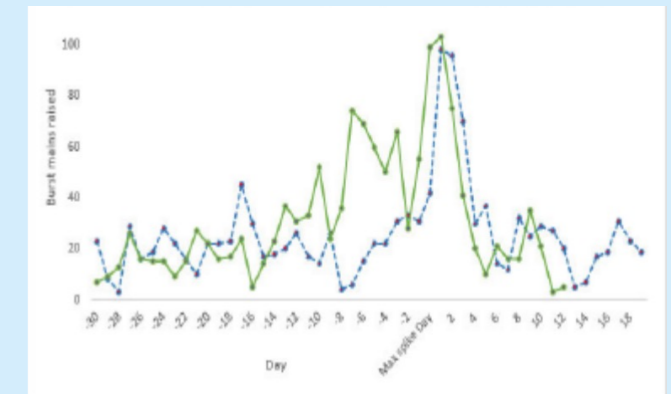
IMPACTS OF RECENT EXTREME WEATHER EVENTS

Winter 2022 – prolonged cold weather

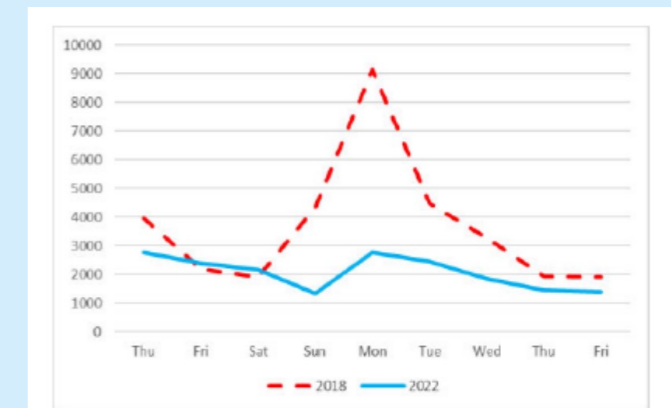
During December 2022, the region experienced a significant freeze-thaw event similar to 2018's 'Beast from the East'. From 6th to 17th December, average temperatures across our region were below 0°C with lows of -8°C on 14th December. This was followed by a rapid thaw on 18th December, with a daily temperature increase of 7.2°C. This resulted in a high level of disruption along our operational chain, largely within our clean water supply networks.

Using experiences from the 2018 freeze-thaw incident, we were much more prepared for our operational challenges, and we reduced impact on customers by 93%.

Graph showing comparable burst rates between 2018 and 2022 freeze-thaw events.



Graph showing reduction in call volume peak between 2018 and 2022 freeze-thaw events



Impacts	Actions
Our operations entered Tactical Incident mode – Our freeze-thaw trigger (temperature rise within a 24-hour period after 8 days of below freezing) was met to initiate this incident. This trigger level had been updated following the 2018 freeze-thaw incident.	We had developed a comprehensive extreme weather Action Plan prior to the event allowing us to enact the plan once pre-emptive action thresholds had been met.
Burst Mains – A sharp temperature increase and subsequent rapid thaw triggered 880 burst mains and a 40% rise in leakage across the network.	We provided an enhanced burst main response by stopping non-essential tasks and changing our work mix to focus on reactive burst mains. Leakage rose from around 15th December and was at approximately double the previous level by 19th December. It was then rapidly reduced through a combination of burst main repairs and customer-side leak repairs over the following week. It took a longer period into February to get back to previous levels through leakage detection and repair.
Increased demand on our customer services despite incoming call volumes remaining stable.	During the incident, we proactively messaged 69,788 customers (47,540 SMS messages and 22,248 landline messages).

2023

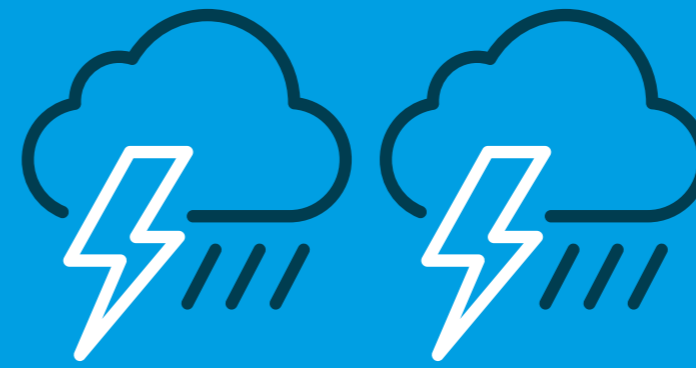
December

Prolonged low temperatures (see above for detail)

April

Storm Noa was the most notable April storm in a decade and brought widespread rain and strong winds

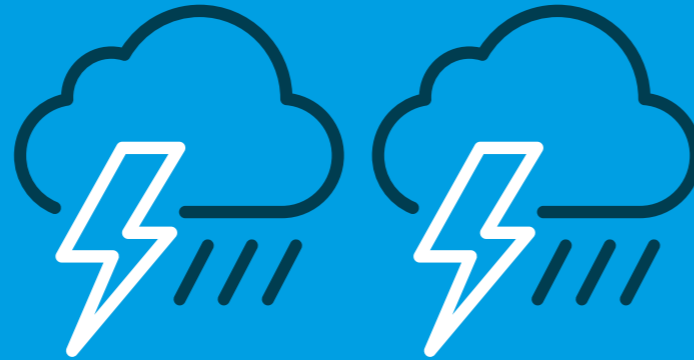
IMPACTS OF RECENT EXTREME WEATHER EVENTS



October 2023 - Storm Babet

During Storm Babet, heavy rain (exceeding 100mm) fell across much of the country. In the Midlands we saw the wettest three-day period on record. This followed wetter-than-normal weather over the weeks beforehand.

Many rivers burst their banks, with record river levels in Derbyshire and Nottinghamshire.



What we learned and how we reacted

We've introduced new proactive measures in anticipation of storm events, such as our improved waste operational control centre. This allows us to prioritise resources such as people and tankers, communicate with customers and communities, and act to mitigate potential impacts as much as possible.

We aim to roll out more monitoring and analysis during future storms, to better understand the relationship between weather and its impact on our assets and customer service. This work will better

prepare us operationally and tactically. It will also allow us to adapt our longer-term strategic plans if needed, by supporting development of robust business cases for any future investment needed.

We're working with the Lead Local Flood Authority (LLFA) on several Section 19 Flood Investigation reports. These go beyond sewer flooding and look at the extent of flooding from other sources, such as rivers and surface water.

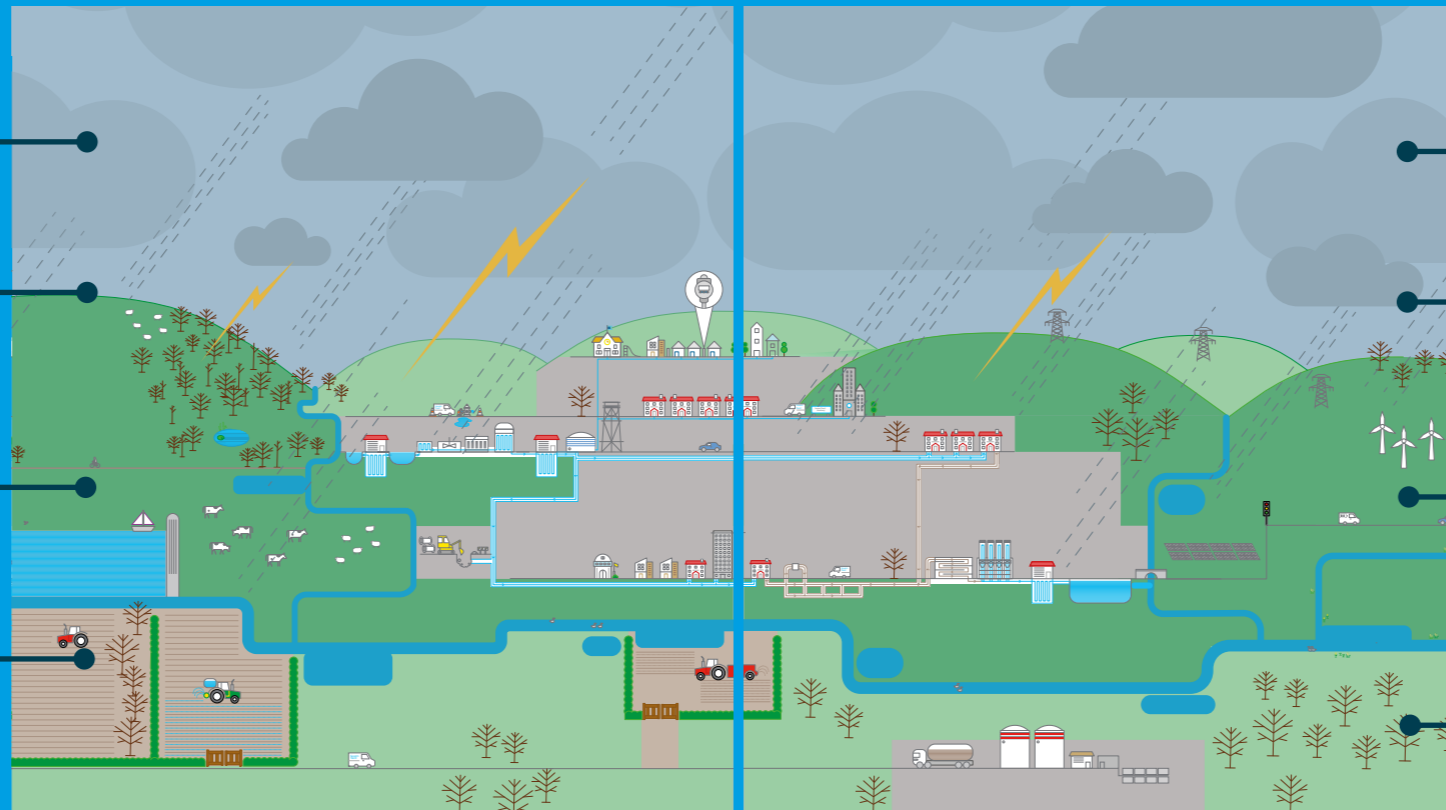
Impacts

Flooding of our assets – five water treatment works, with a combined supply capacity of 167 ML/d (7% of our total), were seriously impacted by flooding. This led to site outages, and for one site a regulatory failure for water quality.

Issues with raw water quality – seven water treatment works, with a combined supply capacity of 625 ML/d (25% of our total), had sustained abnormally high turbidity and dissolved organics concentrations in water to be treated.

Impact on wider society – the local authority and Fire Service declared a major incident in Derbyshire. Flooding closed many roads and disrupted rail travel, affecting our operations.

Managing capacity – we used tankers to relieve pressure on the waste network. While this minimises impact on wastewater networks, it puts pressure on operational budgets.



Impacts

Incoming customer calls - this week saw the highest volume of customer contacts of 2023. Wet weather creates an increase in customer contacts that we must respond to, diagnose and prioritise.

Hydraulic incidents can be variable and are very weather/intensity dependent, we would normally expect an intense event earlier in the year, experiencing this sort of weather in October is unusual.

Internal and external hydraulic incidents - the increased flow meant there were 10 times more floodings than in an average week. October 2023 was our worst October for hydraulic sewer flooding performance since 2015.

Ensuring wastewater can be safely taken away - 46 of our wastewater treatment works and 43 sewage pumping stations were affected by flooding.

2023

2024

September

Heatwave in our region. Nationally, 7 consecutive days above 30°C was a first. Followed by first named storm of season (Agnes) with wind gusts and dense lightning. Chronic heavy rainfall began in this month and continued into 2024 [see page 11 for detail]

October

Storm Babet (see above for detail)

December

5 named storms brought a sequence of heavy rain to our region and led to flood warnings and the installation of temporary flood barriers at Bewdley and Ironbridge

January

Storms Isha, Jocelyn and Henk brought damaging winds and heavy rain; and were followed by unseasonably warm days with record-breaking temperatures at the end of the month

April

Storm Kathleen (11th and final named storm of the season) brought yet more rain and strong gusts of wind

May

Wet weather: 30 to 50 mm over 3 days for large swathes of the Midlands

IMPACTS OF RECENT EXTREME WEATHER EVENTS

Autumn 2023 into 2024 - Prolonged wet weather

Following a September heatwave, the remainder of 2023 and start of 2024 brought heavy rainfall to our region. Nationally, total autumn rainfall was 38% higher than the 1991–2020 average and many parts of the country, including a swathe across the north of our region, received more than 50% more rainfall than average for this time of year. Nottinghamshire experienced more rain from September to December than in any of the past 50 years.

For each month from September, there were more wet days (>1mm) and very wet days (>10mm) than in the 1991–2020 baseline.

There were also 12 named storms during the 2023/2024 storm season – the most since the naming system was introduced in 2015 - including 7 between September and December and a further 3 in January.

Impacts

Increased rainfall contributed to increased sewer flooding during this period. There were 12% more incidents of sewer flooding of customers houses, 42% more incidents of sewer flooding of customers' outside areas and 42% more incidents of sewers flooding public spaces compared with the same period over the previous 2 years. Pollution incidents were 80% higher than the same period during the previous 2 years.

These events impacted our customers and the environment and also added considerably to our operational workloads. The duration of these conditions meant that our teams were under pressure for an extended period of time.

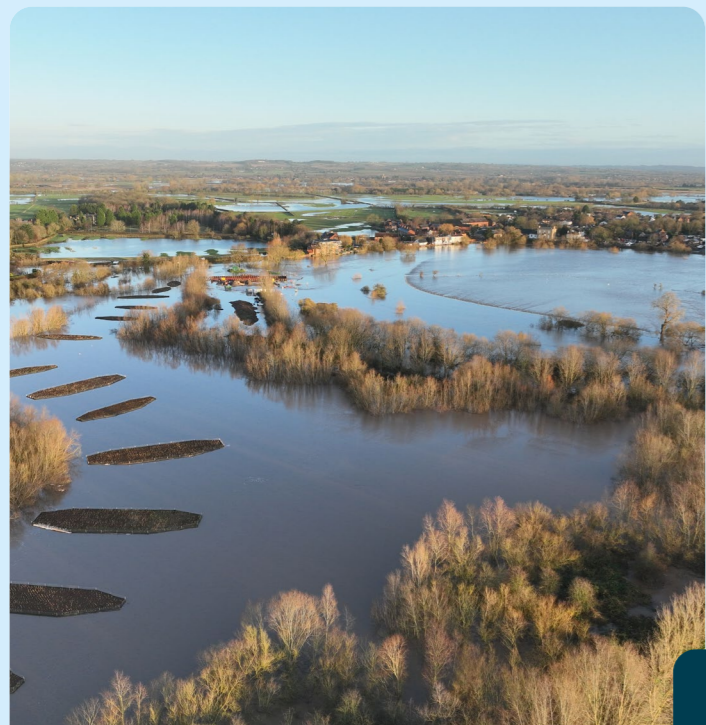
From September to December we experienced 5853 unplanned power outages which is 41% higher than equivalent recent averages. While 1098 of these power interruptions occurred during known storm days, a higher than average rate was noted across the period.

What we've learnt

We have experienced wet periods over the recent past and have made several organisational improvements, such as insourcing our waste networks workforce and tankering, to increase our control of response. We have also strengthened our waste operational control centre, which will improve our response to individual storms and chronic events such as this.

Heavy rainfall can take many forms and subsequent impacts are varied. This incident highlighted the cumulative impacts of persistent rain. Low intensity rainfall events towards the end of this period caused more problems than they would have without the preceding rainfall. We have conducted improved post-hoc analysis of rainfall impacts, and now utilise a range of technologies, such as Storm Harvester, integrating fine-grained weather information and asset monitoring to notify us of impending issues before they occur.

More generally, extreme seasonal rainfall brings to life the scale of impacts that we face in the current climate. While the impacts of these events can be devastating for people and the environment, they provide a useful communication and understanding tool, reiterating the need to plan, not just for average climate change but also climate extremes, realising the scale of change (and impacts) along scenario pathways and testing the effectiveness of solutions built for the future. Whilst the changing climate brings more challenges to us, we are committed to continuing to deliver great performance.



GOVERNANCE, MANAGEMENT AND STRATEGY

How is climate change governed at Severn Trent?

Climate change isn't a new risk, but as we've seen, it will impact existing risks across the business. As a company delivering vital services to millions of people, the way we manage the impacts of climate change is a key part of our thinking.

The first thing we did to ensure high-quality governance was to make sure climate-change thinking was in line with the Group's Corporate Strategy, so it was embedded at the highest level.

How is our senior management committed to climate change adaptation?

The Board is accountable for the management of climate risks and opportunities facing our business. Our Corporate Sustainability Committee is responsible for scrutinising and providing guidance and direction on these risks and opportunities, ensuring that our drive to maintain a leading position is supported with the necessary oversight and insight.

We are now talking about the effects of climate change across the business, including working with our senior manager population to incorporate climate thinking into business decisions.

How are we developing our capacity to adapt to climate change?

When we are developing our Business Plan, all the way through to Ofwat's Final Determination, we have a dedicated company-wide action to monitor the effects of any decisions on our climate-related risk mitigation strategies. This action has an executive-level owner, who also has a critical role in developing the right investment plan to balance operational risk and long-term strategy.

We look at climate risks using key documents including the Drainage and Wastewater Management Plan ('DWMP'), Water Resources Management Plan ('WRMP') and Drought Plan, as outlined in the Strategy section of our annual Taskforce on Climate-Related Financial Disclosures ('TCFD') disclosure. This means that our plans and our investments are based on the climate we expect to be operating in over the next 25 years. These investment plans are broken down into five-year periods to align with Ofwat's regulatory cycle.

We are the first UK water company to disclose our eligibility and alignment to the EU Taxonomy, a reporting system that supports the flow of investment into businesses with greater sustainable alignment. We have strengthened our climate risk assessments and management in line with the EU Taxonomy requirements which has improved our understanding and coverage across the business.

Does Severn Trent have specific climate change objectives in its corporate plans, strategies and business plans?

When we sent our plans to Ofwat for the period 2025–30 (Asset Management Period 8 ('AMP8')), they included a large investment package to tackle climate change.

For the first time, we included a Long-Term Delivery Strategy ('LTDS'). This links our five-year investment programme to 2030 with longer-term objectives to 2050. It considers all recommended warming scenarios, from 1.5°C to 4°C. It shows how our investment plans would differ under a diverse range of assumptions across climate change, demand, water abstraction conditions and technology.

The LTDS also informed our core and adaptive pathways, which determine the actions we might need to take under a range of scenarios. We monitor a range of triggers to evaluate if, in future business cycles, we should make different investment choices to respond to changing circumstances, including key climate change metrics.



HOW WE ASSESS OUR CLIMATE RISKS

Our evolving risk assessment process

We are strengthening our climate risk assessments across the business using principles set out in ISO 14090 and 14091: Adaptation to climate change. Climate risk is embedded in our enterprise risk management system and our corporate principal risk framework (for more information see our TCFD disclosure within our Annual Report). The following sections describe the risk assessment included in this report. It builds on recent learnings from site-specific risk assessments conducted for our bioresources sites and process-level assessments carried out for our sewage treatment works. As this assessment was carried out with a business-level focus, lower scaled hazards and impacts do not meet the threshold for inclusion. For instance, sea-level change has the potential to affect a small number of our sites but given our short coastline, we have excluded its assessment here. We will nevertheless continue to monitor risks like these.

Our system

An important first step in our process is defining the system that has the potential to encounter climate impacts. We reviewed the activities and structure of our organisation as whole as well as individual components of our value chain to identify key assets, processes and people. Importantly, our focus includes inputs and outputs as well as elements of the natural and built environments, third-party infrastructure, and the people, businesses and communities with which we interact.

Our project team

Our project team brought together subject matter expertise in our system and its context (including geographical locations, regulatory obligations and responsibilities to others), in addition to climate change and related risk assessments.

Prioritising climate hazards

We examined recent and projected future changes in temperature, rainfall and storm events. For temperature and rainfall we differentiated acute extremes and chronic, prolonged events. We also assessed general trends in average conditions and changes in seasonality.

Risk identification and delineation

Risks were identified by scrutinising past risk assessments - our own and also those undertaken within our sector and nationally - and fresh consideration of weather impacts we have faced or could face. Each impact was linked to a particular climate hazard or group of hazards and defined in terms of its direct impact and consequent implications. The timing and scale of future systemic changes was judged based on expected future events or continuation of current trends.

Defining climate scenarios

Climate observations and models play an important role in our understanding. We use the Met Office Hadley Centre observations and other licensed datasets to quantify individual weather events and to understand the scale of observed recent climate change and its variation across our region. The Met Office's United Kingdom Climate Projections 2018 ('UKCP18') provide the foundation for our current assessments of future climate risk. These sophisticated climate models capture complex dynamic interactions between land, water and air. Their projections illustrate the scale of likely climate change and how it will vary over time and space, dependent on the extent to which global society is able to limit future emissions.

We have used representative concentration pathways (RCP) 6.5 and 8.0 in our risk assessment as an approximation for global warming reaching 2°C and 4°C by 2100 and on account of the wide variety of climate information available for these RCPs. These rich datasets tell us how weather in our region is likely to change within these global scenarios and importantly also give an indication of future changes in the severity of extreme events. In our current assessment we used UKCP18 probabilistic projections to assess average annual and seasonal changes and related uncertainty, and local projections to enable visualisation of spatial patterns of change. We have assessed our climate risks at 3 time points: the present, 2050 and 2100.

Risk scoring

Risks were judged at a business level based on pre-defined likelihood and impact criteria, taking into account interactions between climate hazards, vulnerability and exposure for our designated system, its inputs and outputs. Scores were generated through interviews with technical experts in our project team and subsequently moderated and benchmarked. Our risk scores reflect quantitative assessments of climate impacts where available (e.g. from our Water Resources Management Plan and Drainage and Wastewater Management Plan), or qualitative expert judgements based on metrics of service outcome, system design and system performance. Our approach to metrics and their monitoring is presented in greater detail on page 14.

HOW WE MEASURE CLIMATE CHANGE AND ADAPTATION

Measures of risk and adaptation

We use metrics to evaluate and manage our climate risk. In line with the Intergovernmental Panel on Climate Change's integrated risk concept, we use measures of hazard, impact, vulnerability and exposure to judge individual risk severity and the effectiveness of our adaptive

approaches. It is important to note that weather and climate are often not the sole drivers of these metrics. Future work will aim to comprehensively establish the mechanisms linking our metrics, which is challenging on account of the dynamic nature of these relationships.

Hazards are the climate characteristics that have the potential to cause harm and can be defined in terms of their intensity, duration, timing and frequency. Example temperature and rainfall metrics are presented in the figure below.

Impact measures quantify the effect of climate hazards. They include impairments to the condition or performance of particular system elements, reductions in service outcome performance and costs to mitigate, rectify and recover from such initial impacts.



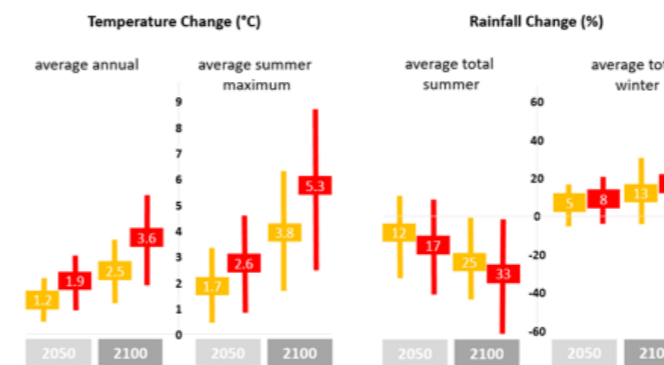
Vulnerability measures quantify the susceptibility and/or sensitivity of particular system elements to climate impact. These include performance and design features and standards such as the reliability of assets, redundancy and in system design and recoverability.

Exposure measures quantify the presence of system elements that may be adversely affected. Our overview on page 5 provides high-level exposure metrics for our business and region categorised in line with the risk categories used in the 3rd national Climate Change Risk Assessment.

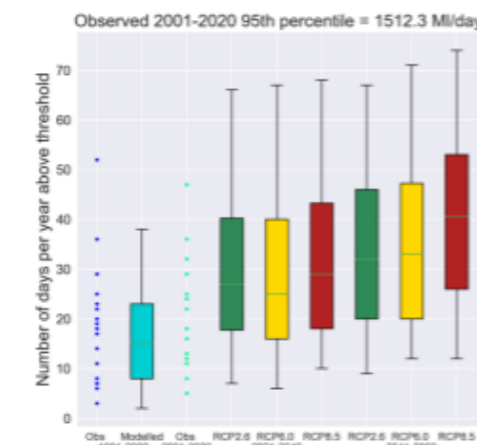
For some key risks we have worked with climate experts at the Met Office to estimate effects of specific future weather events on our service (see diagram, bottom right). Examining these effects over a range of weather conditions and service levels provides a rich understanding of risk. In addition, we use a small subset of indices to monitor the effectiveness of

long-term plans and evaluate the need to adaptively alter our approach (see page 25 for more detail).

We will continue to expand our work on indicators, thresholds and triggers and will use our TCFD disclosure to provide progress against key metrics on an annual basis.



Projected changes to our region's climate compared with a 1981-2010 baseline. Figures shown represent the 50th percentile of UKCP18 probabilistic projections, with error bars denoting range between 10th and 90th percentiles. Amber shows RCP6.5, which we have used to represent the 2°C scenario, while red shows RCP8.0, which we have used to denote the 4°C scenario.



Example of analytical insight from Met Office linking climate and performance indicator levels of water supply. © Crown copyright

Co-benefits of adaptation

As well as reducing climate costs, adaptation provides an opportunity to deliver more for nature and people in our region. Quantifying these co-benefits empowers us to deliver solutions with greater total value. Climate resilience can also be a by-product of activities undertaken on account of other drivers.

Our investment programmes are designed from the perspective of long-term performance on key service outcomes. For 2025-2030 we have quantified wider

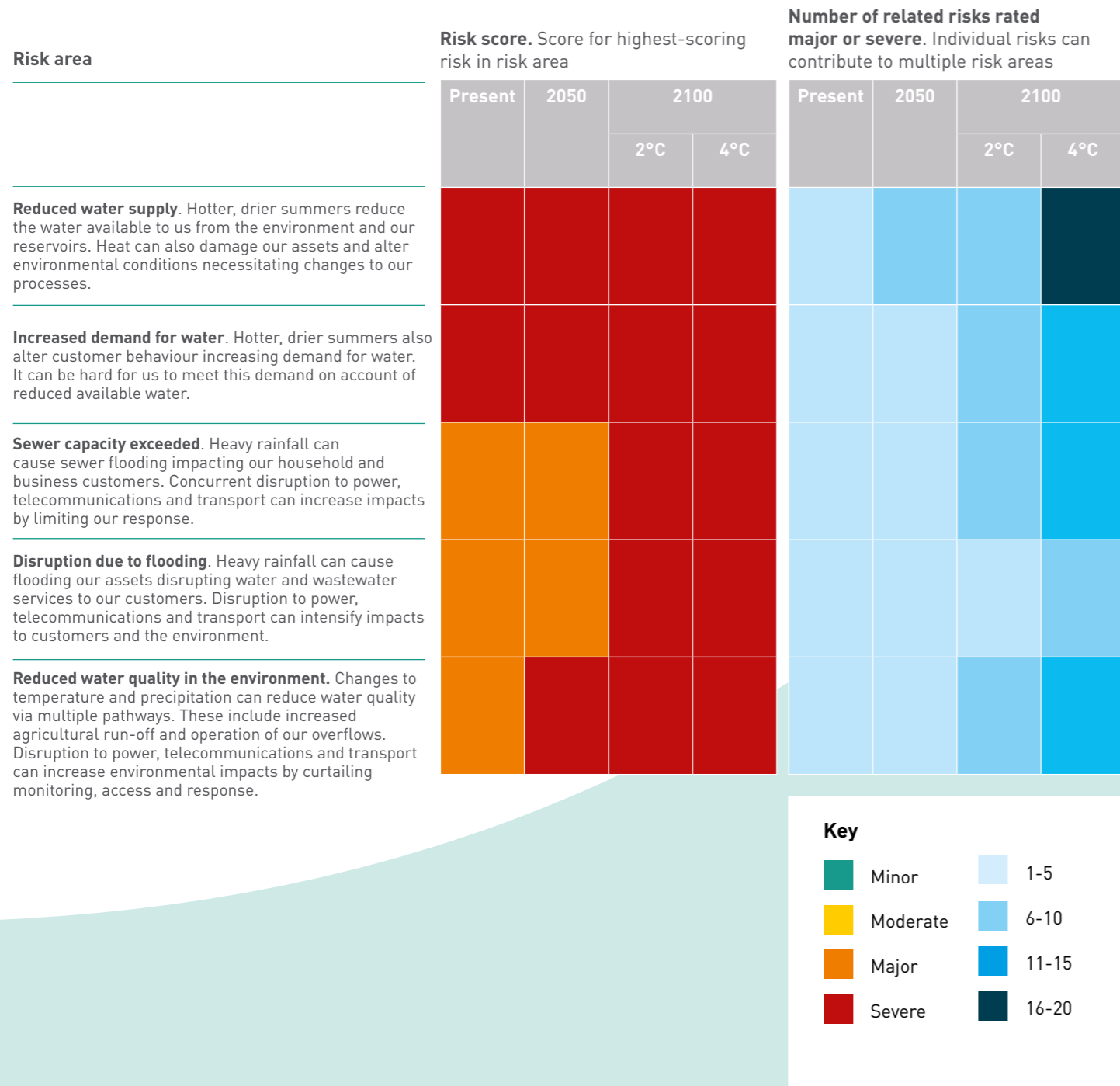
natural and social benefits derived from our enhancement investments. It is important to examine the extent to which these benefits are realised, not least because there is uncertainty in their scale and lag, with weather post-delivery often a factor. We will continue to support cross-sector programmes to develop robust measurement techniques and valuations such as the Ofwat Innovation fund project Mainstreaming Nature Based Solutions. We are also co-funding a PhD project to verify the benefits of our Mansfield Sustainable Flood Resilience project.

OUR BIGGEST CLIMATE RISKS

We have expanded the scope of our climate risk assessment to judge risks between now and the end of the century along 2°C and 4°C pathways. As such it is not possible to directly compare our current scores with those presented in our 2021 Climate Adaptation Report.

Our most severe climate risks remain the same as those previously identified. The figure below presents the severity of these risks now, in 2050 and at 2100 in both a 2°C and 4°C world. We've also considered which of the other risks included in our risk assessment have the potential to interact with these key risks (as shown below right).

There is a trend for marginal increases in the severity of some of our lower-scoring risks. Severe weather over the past 3 years has shed further light on the scale of individual risk impacts. We have also broadened our understanding of the range of impacts that particular hazards bring to our business.



OUR INTERDEPENDENCIES

Understanding interdependencies

We have identified upstream goods and services that we rely on and downstream risks to nature, our customers and communities, and business including agriculture. Our risk assessment includes an 'interdependency' risk category which flags risks that lie outside our control but have the potential to impact us via cascading effects.

Additionally, by considering the diverse impacts of particular climate hazards we are also able to understand the range of impacts that may coincide across the business. Our operations are fundamentally cyclical and there is potential for impacts to propagate along our value

chain. We have worked to identify further downstream implications of primary hazards and also now consider the extent to which risks may disrupt delivery of our business outcomes more widely. Filtering the information in our risk assessment enables us to view climate impacts through a variety of lenses. See Appendix 2 for more detail.

We're beginning to use techniques to visualise key interactions. We plan to use similar approaches more widely to further understand our interdependencies.

Our biggest interdependencies

The environment

We rely on the environment to hold, carry and purify water, as a source of water and as a receptor for final effluent after treatment. Biodiversity loss limits nature's capacity to perform its functions. To help us better understand nature's roles, we have quantified ecosystem services using natural capital accounting and will continue to refine our approach to provide greater insights. We have 124 nature partners including small-scale community groups and environmental non-governmental organisations.

People

Our services are delivered for and by people. Climate impacts to the health, safety and wellbeing of people at work and in their personal lives have the potential to derail our services. Future changes to customer behaviour and demands for services in society – driven by climate and other factors – will likely alter demand for water and expectations on its acceptable use.

Power

We're increasingly self-sufficient for electricity but will remain partly reliant on third-party services, which may be put under pressure by unfavourable weather conditions and the transition to greater electrification across society. Future power demand peaks (e.g. for cooling in hot weather) may exacerbate challenges that we face, while future third-party power assets may increase demand for water.

Transport

Transport disruption can hit us in a variety of ways. We need to have the right people and materials in the right place at the right time to deliver our services and to respond to challenges, while maintaining the safety of everyone that we rely on.

Telecommunications and computing

We depend on digital assets to organise our business operations and to monitor and control our equipment. Failures of our corporate systems have the potential to hit how we work so we must make certain that our systems are resilient and that cyber security is maintained.

Agriculture

Farming requires significant amounts of water and has the potential to reduce water quality in the environment. We work to understand the challenges and plans of the sector through visits to individual farmers and regular meetings with the National Farmers' Union and plan to improve our understanding of this sector through wider stakeholder engagement over the next 5 years.

Farmers adapt. It's vital we continue to collaborate with them to understand the potential for changes in what they do to impact us.

HOW WE ARE ADDRESSING OUR CLIMATE RISKS

This next section of the report presents the actions we have taken and will be taking to manage the climate risks we've identified. The following pages set out the actions we're taking right across our operation to address risks from different climate hazards.

The full list of risks and actions can be seen in Appendices 2 and 3 of this report, but we have summarised the key risks and actions for three elements of climate change we are likely to experience.



Hotter, drier summers

Hot, dry summers make it harder to provide customers with water, often at the same time as increased demand. Future increases in heatwaves will only make this more of a challenge.

Extreme heat in dry conditions has a number of further impacts – not just affecting water supply and demand, but also its quality, and our ability to transport and treat wastewater.

Warmer, wetter winters

Increased rainfall and milder temperatures in the winter months could significantly affect our people, processes and the wider environment. Increased likelihood of flooding can damage infrastructure, overload sewers and affect treatment processes.

Conditions like this will mean we need to put more effort into maintaining our assets and supply, improve storage and work harder to keep water quality at the level our customers expect.

Extreme weather – storms

Storm events can have a large impact on our assets and breach the capacity of our network from the volume of rainfall that occurs in such a short timeframe. From September 2023 to February 2024, there were 10 named storms that hit the UK, with storm Babet being one of the most impactful in terms of winds and rainfall. 2023 saw a total of 345mm rainfall, which is 138% of the 1991-2020 average.

The Met Office future projections for the UK indicate that winter windstorms will likely increase slightly in number and intensity, so it is important that we are prepared for the impacts of such events.

We then provide more detail on what we're doing in the following areas:

- Our key investments
- Our people, systems and knowledge
- Our supply chain
- Our customers
- Our partners

HOTTER, DRIER SUMMERS

These pages illustrate some of our key activities to understand and mitigate summer climate risks. For full details of all related risks and activities please see Appendices 2 and 3.

Wildfire can cause harm to nature, people and assets, all of which can disrupt our operations.

To mitigate this, we have:

- Enhanced biodiversity on 11,500 hectares of land in our region as of April 2024 reducing its susceptibility to fire.
- Developed an extreme heat policy and approach.
- Planted 964 hectares of sphagnum moss to restore peatland in partnership with Moors for the Future since 2020.

We will:

- Enhance biodiversity by 0.73 units per 100km² in our region.
- Continue to ensure compliance with DSEAR and COMAH regulations on our sites.

More favourable conditions for invasive non-native species (INNS) can increase their prevalence and impact our operations.

To mitigate this, we have:

- Completed a business-wide INNS risk assessment and implemented mitigation measures to increase our biosecurity.

We will:

- Create 2 biosecurity roles within our Biodiversity & Ecology Team.

Increased short-term customer demand for water can place our supply under stress.

To mitigate this, we have:

- Delivered over 40,000 home water efficiency visits since 2020.
- Installed over 450,000 water meters, putting us on track to install 500,000 by the end of 2025.

We will:

- Increase our ability to deliver water at peak demand through better forecasting, reducing waste and increasing connectivity.
- Invest in 6 resilience pipelines to transfer water to where it is needed most.
- Help our customers to reduce water use by investing nearly £300m to lessen demand, including rolling out smart meters to one million customers by 2030.

Convective storms also occur during hot weather causing additional impacts and compounding effects of hot, dry conditions. Please see pages 23 and 24 for more details on our actions to reduce storm impacts.

Heat damage of our mechanical and electrical assets can disrupt our clean and waste water operations.

To mitigate this, we will:

- Complete further investigations to understand which of our assets are most sensitive to heat.

Reduced river and reservoir levels can result in restrictions in the amount of water we can abstract and supply.

To mitigate this, we have:

- Completed an award-winning project to rectify a scour hole on the Derwent reservoir basin.
- Progressed our 5 strategic resource options projects, whose aim is to contribute to meeting this need nationally, through Gate 2 of the Regulators' Alliance for Progressing Infrastructure Development (RAPID) process.

We will:

- Increase the storage volume of Draycote reservoir to deliver a further 9MI/d of water into our supply. This work has gained recent regulatory approval.
- Create a new water treatment works at Witches Oak.
- Create a Carsington-Tittesworth pipeline to deliver up to 30 MI/day of water to our North Staffs water resource zone.
- Ensure every household has multiple, resilient sources of supply and maintain emergency supplies to cope with unexpected interruptions.

Changes to soil moisture can lead to ground movement and damage to pipes causing leakage.

To mitigate this, we have:

- Delivered a 10.8% reduction in leakage since 2019/20 and are on track to meet our target of 15% by 2025.

We will:

- Renew over 1300km of water mains before 2030 to drive down leakage and ensure our most at-risk assets are replaced.

Algal blooms in nutrient-rich water sources can impact our ability to safely treat water.

To mitigate this, we have:

- Installed algal monitors at 4 reservoirs.

We will:

- Install a new treatment process at Whitacre as part of our raw water deterioration scheme.
- Carry out targeted nitrate investigations around our impounding reservoirs by 2030 to establish if upstream sewage treatment works are meaningful nitrate contributors.

Low water levels can lead to reduced water quality in the environment as pollutants are less diluted.

To mitigate this, we have:

- Reduced our contribution of 'Reasons for Not Achieving Good Ecological status (RNAGs) in rivers in our region to 14% through our commitments within our Get River Positive programme.

We will:

- Provide more resilience to more concentrated pollutants through the AMP8 water quality schemes planned for our large water treatment works.
- Introduce or enhance existing reduction of ammonia or biological oxygen demand at 42 sites resulting in 346km of river benefitting from sanitary load reduction.
- Install 1000 river quality monitors to inform targeting and prioritisation of future investment to improve water quality in the environment.

WARMER, WETTER WINTERS

These pages illustrate some of our key activities to understand and mitigate winter climate risks. For full details of all related risks and activities please see Appendices 2 and 3.

Less frequent extreme cold events can result in a lack of preparation and result in more severe impacts for our operations.

To mitigate this, we have:

- Enhanced our preparedness and learnt from previous freeze/thaw events. This resulted in a 93% improvement in some customer metrics during the 2022 freeze-thaw event compared with 2018's 'Beast from the East'.

We will:

- Remain prepared for any future extreme cold events.
- Ensure all relevant assets will comply with IED regulations. This includes providing double skinned pipes for above ground assets to reduce the likelihood of damage from colder temperatures.

Ground saturation can lead to landslides that damage infrastructure such as pipes or aqueducts.

To mitigate this, we have:

- Identified high-risk locations for landslides, assessed key pipelines such as the Ashop raw water pipelines in the Derwent Valley and set up risk registers to ensure we have adequate plans for major assets.
- Established a Network Resilience Team.

We will:

- Conduct further assessments and monitor this risk.

Overloading of the wastewater network can result in operation of storm overflows.

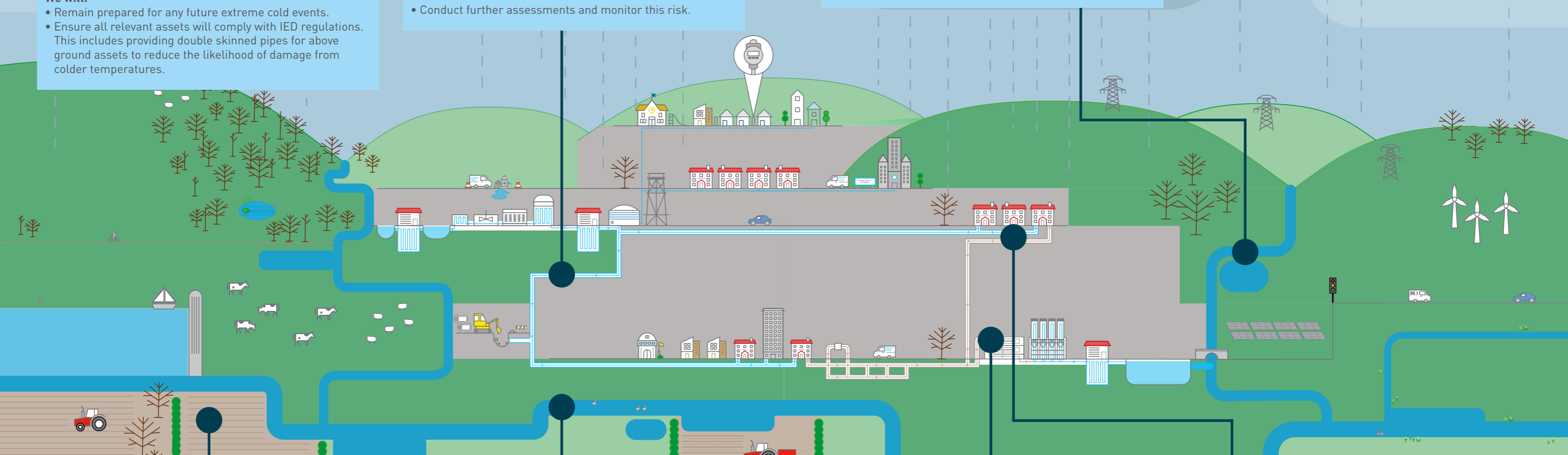
To mitigate this, we have:

- Installed over 7,000 sewer sensors in 2023.

We will:

- Invest £1.7bn to deliver the AMP8 elements of our Storm Overflows Action Plan, which will reduce storm overflow spills by 26%.

Intense storms also occur during winter causing additional impacts and compounding effects of prolonged wet conditions. Please see pages 23 and 24 for more details on our actions to reduce storm impacts.



Flooding to farmland and changes in farming practices can make the sludge to land route unviable.

To mitigate this, we have:

- Completed a pelletisation trial of our biosolids to establish feasibility for future product development.

We will:

- Increase cake pad storage capacity at our bioresources sites where space permits.
- Create drying and pelletisation plants at Strongford and Finham as storage cannot be increased.

Increased soil erosion and run off from fields can increase the amount of sediment, pesticides and pollutants in watercourses reducing water quality in the environment.

To mitigate this, we have:

- Outperformed on our farming for water performance commitment by delivering 31 catchments since 2020.

We will:

- Expand 2 of our 4 large water treatment works on the River Severn by 2030, which will provide resilience and flexibility to manage turbidity and pollutant loading.
- Work with others to improve river quality and ensure that Severn Trent is never the reason for rivers failing to meet quality standards.

Capacity and storage at sewage treatment works can be exceeded necessitating wastewater discharge.

To mitigate this, we have:

- Installed storm overflow monitors at 100% of our sites.

We will:

- Install 149 flow to full treatment monitors and monitors at 324 emergency overflows.
- Install 700 new storage solutions at treatment works to capture and store more flows during high rainfall.

Overloading of the wastewater network can result in sewer flooding of customer properties.

To mitigate this, we have:

- Completed the Mansfield Sustainable Flood Resilience Project - a £76 million investment installing the UK's largest programme of sustainable drainage solutions to date, including rain gardens, detention basins and bioswales that reduce the amount of rainwater entering our sewer network.
- Developed our first DWMP including modelling information on properties which could be at risk of sewer flooding from a 1 in 50-year storm (2.58% of properties) and forecasts for the future.

We will:

- Invest in our sewer network to reduce internal sewer floodings by 25% and sewer collapses by 13% by 2030.
- Improve network monitoring and rainfall management, working to separate wastewater and rainwater in high-risk areas.

EXTREME WEATHER - STORMS

These pages illustrate some of our key activities to understand and mitigate storm climate risks. For full details of all related risks and activities please see Appendices 2 and 3.

Our assets (including buildings, land and on-site transport) can be damaged by storms disrupting our operations.

To mitigate this, we have:

- Developed a storm readiness strategy.
- Developed standard operating procedures that are followed when storms are forecast.
- Undertaken better analysis of storm impacts across our operations.

We will:

- Review our asset standards to reflect future climate more comprehensively.
- Continue ongoing lightning protection assessments for high risk assets.

Flooding can lead to damage of our clean water assets and disruption of our operations.

To mitigate this, we have:

- Developed a storm readiness strategy.
- Developed standard operating procedures that are followed when storms are forecast.
- Undertaken better analysis of storm impacts across our operations.

We will:

- Implement permanent flood defences on sites and key assets to try and mitigate the impacts of surface flooding.
- Work to further understand flood risk at our clean water sites.

Increased scale and frequency of bad weather events can lead to reduced customer satisfaction with our services.

To mitigate this, we have:

- Developed improved storm readiness plans and contact our customers ahead of expected challenging weather conditions.
- Invested to improve our waste Operational Control Centre and use insights from real-time data visualisation and spill prevention strategies in our daily operations.
- Insourced our Reactive Sewer Services team to give a better response to problems in the sewer network.

We will:

- Expand our Waste Operational Control Centre to enhance our incident management processes and capabilities, with an initial focus on storms.

Storm damage to third-party electricity supply can cause disruption of our operations.

To mitigate this, we have:

- Assessed the resilience of our wastewater treatment works and major sewage pumping stations against power outages, fluvial flooding and remote communications.
- Improved our self-sufficiency and now generate 60% of our required energy.
- Gained recent certification against ISO55001 to ensure our asset management follows best practice.

We will:

- Continue to invest in energy efficiency across our sites.
- Deliver schemes to improve the resilience of our assets from power outages and pluvial/fluvial flooding associated with climate change.

Flooding is a complex issue. We're working with others to reduce flood risk across our region. Here's who to contact for different types of flooding.

 <p>FLOODING IN THE ROAD Speak to your local council. For major roads, contact the Highways Agency on: 0300 123 5000.</p>	 <p>MAJOR RIVER FLOODING (BREAKING BANKS) Contact the Environment Agency flood helpline on: 0345 958 1188.</p>	 <p>SMALLER RIVER OR STREAM FLOODING Speak to your local council.</p>	 <p>SEWER FLOODING If it's sewage from a manhole, we're here to help. Report it at stwater.co.uk</p>
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If a flood is just rainwater, you don't need to call us. It should go down again after the rain stops.

Our assets (including buildings, land and on-site transport) can be damaged by storms disrupting our operations.

To mitigate this, we have:

- Increased storage and diversified our supply chain for key products such as chemicals.

We will:

- Include climate resilience in supplier selection criteria.

The changing frequency and severity of storms makes it hard to prepare.

We will:

- Use AI to develop new software to provide an early warning system for potential floodings and pollutions based on real-time data and model simulations.

Flooding of land and transport networks can restrict access to our assets.

To mitigate this, we will:

- Work with partners in our region to better understand transport vulnerabilities.

INVESTING TO REDUCE OUR RISKS

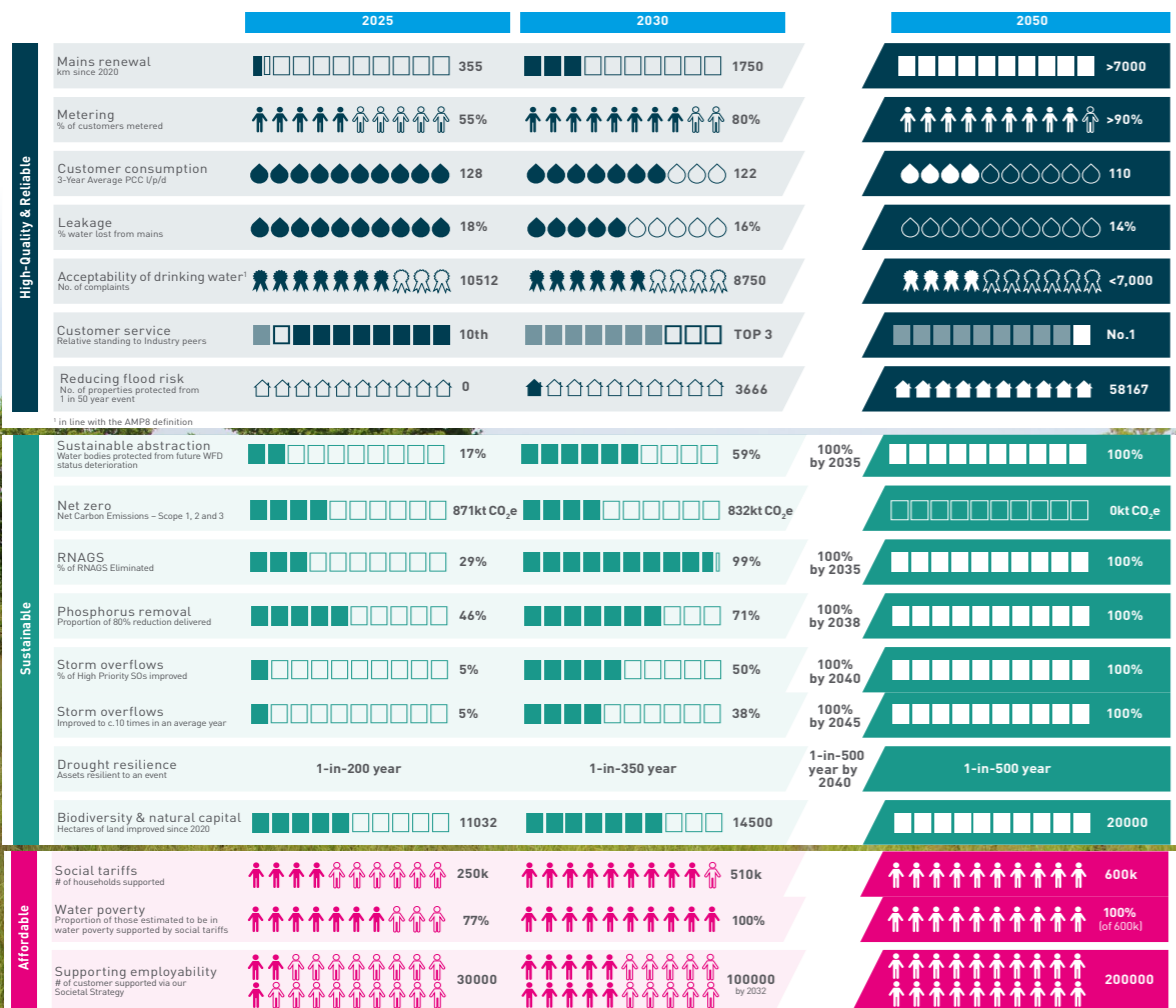
Climate change is central to our long-term strategy and embedded in our new 5-year investment plan.

Our Long-Term Delivery Strategy ('LTDS') represents a significant step forward in our strategic planning, allowing us to outline our activities over the next five years but in the context of 25-year outcomes. It brings together every aspect of our planning – strategic planning frameworks, statutory environment programme and planned enhancement activities – into a single adaptive strategy covering both water supply and wastewater services for the first time. Over 99% of our core investment pathway at PR24 represents the best value strategy to meet our 2050 ambitions. The remaining 1% is needed to keep future options open. The total investment in the core pathway is projected to be around £20bn by 2050, with more than £5bn of priority, cost-beneficial enhancements proposed for AMP8.

Generational fairness is factored into our planning to ensure that delivery of our outcomes is balanced with keeping customer bills reasonable and equitable over time.

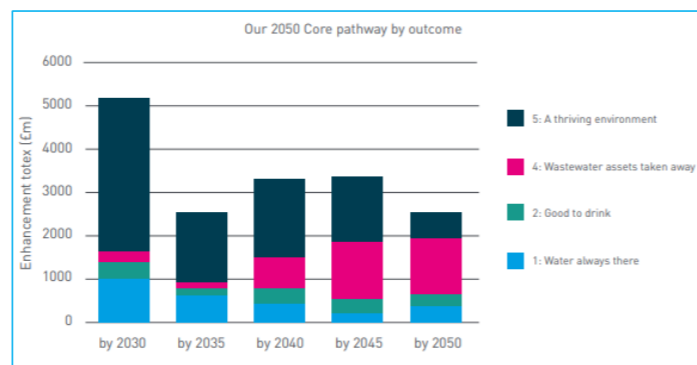
Effective monitoring of our adaptive pathway is a key part of successful delivery of our LTDS. We have developed six high-level indices that make up our monitoring plan.

Our long term outcomes, key actions and targets that provide the best value steps towards achieving our 2050 vision



Wherever possible, we have defined the thresholds that will trigger action, and the likely action to be taken. The thresholds will be kept under review and developed as we gather more data throughout AMP8. Our metrics were developed with advice from experts and are aligned with our climate change adaptation plan. We have identified the smallest number of measures that will give us reliable and meaningful insights across our investment programme, enabling us to navigate the alternative pathways and minimise the cost of data gathering.

Enhancement investment in our core pathway



WORKING WITH OUR SUPPLY CHAIN TO MANAGE RISK

Overview

The resilience of our supply chain is paramount to us delivering essential services sustainably, and we continue to build upon our overarching approach to supplier heat mapping and contingency planning to effectively assess and mitigate the impact and likelihood of failure to supply goods or services required by our processes and projects. For example, over the last couple of years there has been a significant increase in demand for tankering, largely due to worsening weather conditions. Through improved forecasting and monitoring, a bespoke contractual model and collaboration with our supplier partner, we have an effective contingency plan to ensure service impact is minimised during peak demand.

Our focus has been on building awareness and knowledge on climate resilience, both with our supply chain partners and teams who directly engage with them. Through our partnership with the Supply Chain Sustainability School, we have delivered a 'Lunch and Learn' to our supply chain partners, and mandatory training to all Procurement, Contract Management and Capital Commercial Teams.

A focus on energy

We rely on a stable electricity supply for our c.6,500 sites, crucial for our treatment operations. Annually, we experience around 14,200 local power interruptions, mainly due to weather events like lightning storms and heavy rainfall although the reliability of our electricity supply has been improving.

Climate change presents significant risks to energy networks, which could lead to service interruptions and increased costs. To adapt, we focus on maintaining business-as-usual responses, investing in electrical protection, and ensuring resilience through backup generation. We also collaborate closely with energy networks to minimise disruptions.

Our strategy includes continuous investment in our assets and processes to handle power interruptions effectively. We are committed to adapting to future climate challenges and ensuring that our services remain reliable for our customers.



Actions to address risks in our supply chain

Going forward we recognise the need to strengthen our understanding of specific climate change risk at supplier-category level, ensuring we identify and address potential vulnerabilities as the effects of climate change are expected to worsen.

In 2025, we will deliver a dedicated workshop with Category and Contract Managers to deepen our understanding and inform any additional requirements that may need to be considered within contingency plans; working in collaboration with our supply chain to find joint solutions to adaptation challenges.

DEVELOPING OUR PEOPLE, SYSTEMS & KNOWLEDGE TO MANAGE RISK

Engagement and training in the business

What we've done so far	What we're going to do
Over the past year we have run a series of climate engagement sessions with key teams across the business, from Senior Management Teams to those dealing with impacts out in the field today. These sessions have improved awareness of how the climate has already and is projected to change, giving teams the opportunity to explore how their business area might be impacted.	In addition to continuing our engagement, we will map roles across the business to better identify what each area needs to know and what tools or skills they need to enable them to factor climate change into decision making. We will then develop tailored training plans and material for our staff.

Improving our risk assessments

What we've done so far	What we're going to do
Currently our risk assessments utilise quantitative climate projections and for a small subset of priority risks we have begun to explore relationships between service and climate factor indicator thresholds. We plan to work more to understand the mechanistic links between the weather we experience and the impacts that we feel and envisage using insights gained to continue our steady progress towards a more comprehensively quantitative climate risk assessment. This year we conducted site-level climate risk assessments for our permitted bioresources and depot sites. We will, by 2026, integrate the outputs of these assessments into our environmental management systems.	We will also conduct site-level climate risk assessments for additional priority sites to give us a more informed view of local variations in climate risk within our operations.

Developing our insight & technical capability

What we've done so far	What we're going to do
We have been carrying out quantitative climate modelling for Water Resources for many years, but we have now begun expanding our climate expertise to other areas. We have created a focussed climate change team who have built expertise through completing the Met Office 'Assessing your climate risk' training course.	We have plans to significantly increase our climate-related monitoring, data capture and analysis.

Storm readiness

What we've done so far	What we're going to do
We're expanding our waste operational control centre to enhance storm readiness through improved alarm triaging, enhanced incident tracking and post incident reviewing with a centralised pollution response team. To become better adapted to storm incidents we will implement a three-pronged communications approach with our customers to include pre-engagement, re-iteration during events and closely follow events with a service recovery period to reassure our customers.	We will incorporate the use of AI&I Storm Intelligence to provide early warnings to identify pollution and flooding risk areas with plans to increase our tanker fleet more than 2.5 times over.

Interdependencies

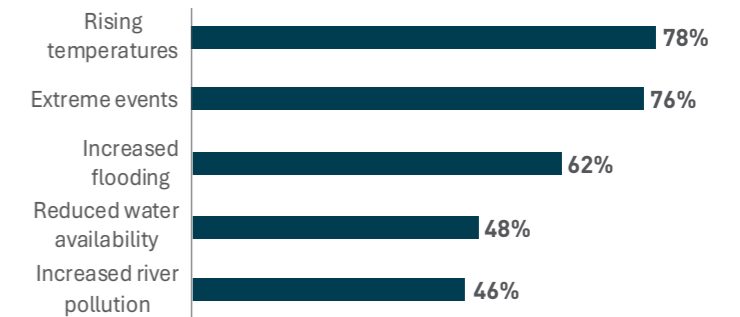
What we've done so far	What we're going to do
Through our work to date, we have identified key interdependencies that we rely on to deliver our services. We have made some first steps working with others to gain a clearer view of the future landscape together.	We will work to identify specific third-party touchpoints that are particularly critical to our business functions, quantify their importance to us, and understand their current and likely future resilience with respect to particular climate factors. We will also work towards the development of long-term plans that are informed by an enhanced understanding of the work planned by others to enable the climate resilience of our region to be synergistically improved.

WHAT OUR CUSTOMERS THINK

We've carried out research to understand our customers' views on climate change, its impact on the environment and their expectations on the role we should play.



The research we carried out to help us develop our business plan for 2025-2030 showed us that most of those customers questioned were aware of climate hazards and impacts such as rising temperatures, extreme weather events and flooding in their local area.



Our customers aren't always aware of the links between weather and our services or that our activities have a role in reducing climate risk. This is understandable especially where the link between our work and the weather is indirect.



Water metering plays a role in maintaining a resilient supply of water to our customers by helping to reduce consumption and by enabling us to find leaks more quickly but most customers don't believe it can help us tackle climate change.

Insights like these show the importance for us to articulate climate links in our work and to effectively spread these messages to our customers. This will help them to help us lessen risks that we face in the region.

We will continue to work to understand our customers thoughts, feelings and preferences with respect to climate change and the risks we face in our region and will incorporate these into our business planning. A focus of future research will be to understand customer preferences towards investment in particular climate-relevant solutions and levels of protection against climate risks.



WORKING WITH OUR CUSTOMERS TO ADAPT

Managing our water together

Rising temperatures increase demand, making increased water efficiency and sustainable use of water more important. Increased chance of drought could lead to reduced water availability and affect abstraction. Customers can help reduce water demand by reporting leaks, installing water-efficient fixtures, and using rainwater for gardening. By reducing consumption, customers can help to ensure a more reliable water supply.

More extreme rainfall events cause increased flooding. To help minimise effects on our waste network,

responsible customer sewer use and sustainable drainage is vital in avoiding blockages and ensuring the network can cope with increased flow levels.

We have many different projects and initiatives involving our customers that not only help to adapt to climate change, but also promote responsible water and drain use. This collective effort can mitigate the strain on water resources, ensuring that there is enough water for essential needs.

Metering and efficiency

- Meters help customers manage their water usage and identify leaks. They're a key part of maximising the network's efficiency.
- We've installed 111,000 smart meters so far and are on track to reach 157,000 by the end of 2025.
- We plan to install 1 million meters in AMP8.
- So far this year 22,500 customers have signed up to our 'Get Water Fit' initiative, helping to improve efficient water use in the home.

Education and communication

- Blockages in our network have reduced by 17% year on year, 30% ahead of our target, following on from an extensive customer education programme and network cleansing.
- 'Our Water' was a customer research campaign to help our customers link energy to water use around the home, highlighting how changing water habits can lead to energy and monetary savings.



As well as adaptation focused projects, we are always working to support customers with their bills and supporting many local groups through funding and volunteering. We currently support more than 250,000 customers through our financial assistance schemes and as we continue to adapt to climate change, we are committed to having one of the lowest bills across all water companies by the end of AMP8. We are also dedicated to improving river quality to reduce our impact and enhance biodiversity whilst providing leisure opportunities for our customers.

Case Study – Reducing water demand through behavioural incentivisation – with help from the Ofwat innovation fund

We have partnered with the Nectar loyalty and reward programme (in collaboration with the Consumer Council for Water, South Staffs & Cambridge Water, Hafren Dyfrdwy, and Portsmouth Water) to run a large-scale trial incentivising water-efficient behaviour by offering Nectar points to customers.

Unlike seasonal demand reduction campaigns – which often focus on shorter-term behavioural change – by offering incentives on an ongoing basis, we can help to contribute to year-round changes.

WORKING IN PARTNERSHIP TO ADAPT

Climate change is a global problem and we can learn from and with others around the globe. Some adaptation solutions need to be at a local scale. We are working with partners to learn and adapt, some examples are shown here.

Global – working with other water companies and sectors

The unprecedented and sector wide nature of some of the challenges our team are working on mean that they are best solved through collaboration and knowledge sharing. We have established our innovation ecosystem to help and encourage us to push out beyond our boundaries. Our ecosystem is diverse and

brings creative people and organisations together from multiple sectors, across the globe. We seek out people and organisations who share a belief in these principles. We believe that this is often more important than water domain experience which is why we welcome so many to our team from outside of the water sector. We believe that this enriches our creativity and helps us to learn faster.

National – working on strategic resource options

Climate change (along with population growth) is putting increasing pressure on the UK's water resources. Water companies are developing plans to reduce demand and tackle leakage, as well as developing new sources of water. As the scale of this challenge varies across the UK, we're working with various other water companies on a range of options called Strategic Resource Options ('SROs'). These are nationwide options and are currently

in the very early stages. We're concentrating on what's possible and how we could deliver projects to help make sure everyone has enough water in the future. We are currently working on 5 SROs, including the Severn to Thames transfer (a collaboration with United Utilities and Thames Water, which will enhance supply to SE England), and the Grand Union Canal Transfer (a collaboration with Affinity Water and the Canal and River Trust which will enhance supply to NW London and Hertfordshire).

Regional – working in partnership as part of Severn 2100+

We are part of the River Severn Partnership, a collaborative group of regional bodies including the Environment Agency, National Resources Wales, Natural England Councils, Rivers and Wildlife Trusts and other local groups. Its aim is to make the Severn, Wye, Warwickshire Avon and Teme the most vibrant and

resilient river network, where an exceptional quality of life, prosperous local economies and an outstanding natural environment is driven by a programme of innovation to reduce flood risk, secure future water resources and improve and deliver shared natural assets. The partnership is running a 'Severn 2100' pilot in which we're working together to plan for climate resilience across the River Severn Water System.

Local – working with local authorities

The scale and make-up of climate challenges varies across our region – with water consistently front and central - so it's important for us to work with organisations locally. We are excited by the opportunities offered by the inclusion of a subset of local authorities in this Adaptation Reporting Cycle. We've worked with several local authorities including

Coventry City Council on their risk assessments and action plans, providing information on our current and expected future impacts and our plans to reduce risks affecting their area. The creation of multi-partner working groups gives us all an opportunity to gain insight and understanding from technical experts in wide-ranging areas and is key for an informed and balanced local adaptation plan.

OPPORTUNITIES

A changing role for water

Shifts in weather patterns will bring opportunities as well as challenges. Changes to the seasonal availability of water will require us to rethink how we view water as a society.

As a water company, it will be essential for us to make the weather work for us more effectively. For instance, viewing rainwater as a tool to control and flush our sewer systems, as an energy source to generate power or as a commodity within systems of circular economy all have the potential to unlock great advantages for our region.

As weather becomes more extreme, our perceptions and experiences of our region's climate will evolve. As a society, we'll place greater scrutiny on how much water we use and in which circumstances it is justifiable to use drinking water. This will offer opportunities in terms of water efficiency and generate a need for technologies and supporting infrastructure to enable us to transform our patterns of water use.

Improved ways of working

Deepening our understanding of climate-impact pathways can bring multiple benefits. Identifying and tracking hazard, vulnerability and impact indicators and their inter-relationships is vital for the effective management of climate risk and also in judging the success of control measures but it can take our understanding of our own assets and processes to another level.

There is also great potential for us to further embed and utilise climate-related insights. Evolving our standards will produce efficiencies and lessen the likelihood of locking ourselves into technologies with a short shelf life. It is of course important for us to also consider climate change in the context of other likely future systemic changes, such as changes to demography and population size. Untangling links between climate and non-climate factors will require methodological advances.

We expect fewer very cold winter days in the future and fewer freeze-thaw events. There will be a need for us to reliably maintain our organisation's memory so that we remain resilient to rare cold-weather incidents when they occur, and more generally for us to consider our approach towards low probability, high impact events including both those that have and those that have not previously occurred.

Working with others

There is currently a need for us to better understand the climate risks and impacts faced by other organisations and their potential to impact our service. Interdependencies are dynamic, changing according to climate shifts, societal changes and sector-specific improvements. Working more closely with others across our region and beyond will necessitate improvements to collaborative planning and data sharing practices between organisations such as infrastructure providers.

Climate change is at the forefront of many of our customers' minds. This shared focus can help us work better together and share understanding, beliefs and preferences with each other. We need to accurately and accessibly communicate the challenges climate change brings, uncertainties that we face, the trade-offs between particular choices that are available to us, and importantly to gain a greater understanding of what our customers want now and what they're prepared to invest in for the future. This will help us make informed decisions together.

Tackling climate impacts on water can also bring us together. If we can prepare and adapt together and protect each other when adversity arises, as organisations, communities and individuals, we can build a more cohesive society. There are opportunities for us to work to understand the role our communities want Severn Trent Water to play and for us to then use our position to instigate necessary changes.

Challenges to climate adaptation currently include:

1. Knowing when to invest – climate change brings a mix of long-term trends and more volatile climate shocks. This makes it hard to prioritise and not knee jerk from an event, while keeping bills low and maintaining a fair cost share across generations.
2. Absorbing the learning – fast developments in technology and understanding coupled with our urgency to adapt make it difficult to take everything on board and not reinvent the wheel.
3. Agreeing sector-wide standards informed by robust analysis.
4. Ensuring that adapting our services goes beyond adapting individual assets – understanding the role of internal and external interdependencies is difficult particularly given their dynamic nature.

These challenges are exacerbated by misalignment in the regulatory systems, cycles and priorities between organisations and sectors and current systems of cross-sectoral collaboration. We are committed to working with others over the next 5 years to tackle them.

HOW TO FIND OUT MORE

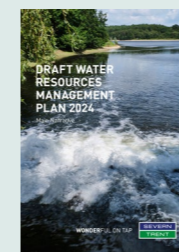
If you'd like to find out more have a look at our other publications and see our website for case studies:

Our approach to scenario analysis and our key documents that utilise the modelling work

Scenario analysis is a key component of assessing both the likelihood and consequence of our major climate-related risks. Stress testing our ability to deliver customer outcomes against a range of variables highlights our resilience and informs our long-term strategy and investment plans. These are outlined in several key documents as referenced below:

WRMP, Drought Plan and DWMP

Our WRMP and DWMP focus on the Environment Agency's ('EA') preferred scenario, which includes changes to rainfall patterns (drought and flood), demand forecasts arising from population growth, changes to building regulations and water device labelling, requirements to reduce abstraction licences, and changes to assumptions made around technology.



Draft Water Resources Management Plan

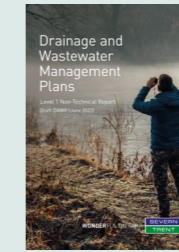
Our draft WRMP – published for consultation in September 2023 – sets out how we intend to provide supplies of water to our customers for the next 25 years and also looks ahead to 2085 to help us understand and prepare for the future.

It considers both demand – how much water customers will need in the future, considering factors such as climate change and population; and supply – how much water is available for use now and how this may change in the future due to the impact of climate change, as well as potential reductions in the volume of water we are allowed to take from rivers and groundwater.



Drought Plan

It is a statutory requirement under the Water Act (2003) for water companies to produce and maintain a Drought Plan every five years. Our Drought Plan 2022-27 sets out how we will manage our resources and supply system during dry and drought years, whilst balancing the interests of customers, the environment and the wider economy.



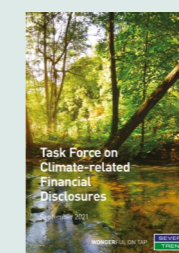
Drainage and Wastewater Management Plan

Our final DWMP, published in March 2023, sets out the 25-year (2025-50) challenges faced by our wastewater system in light of future pressures such as climate change, population growth and urbanisation. It also informs strategic investment choices to determine the best value plan on how to extend, improve and maintain robust and resilient drainage and wastewater systems.



Long-Term Delivery Strategy

As part of our PR24 Business Plan submission to Ofwat, we developed our Long-Term Delivery Strategy ('LTDS'), which brings together for the first time every aspect of our planning for the next 25 years – strategic planning frameworks, statutory environment programmes and planned enhancement activities – into a single adaptive strategy that covers both water supply and wastewater services (including bioresources). Both our draft WRMP and final DWMP fed into our LTDS and wider AMP8 plans.



Task Force on Climate-Related Financial Disclosures ('TCFD')

Our annual TCFD disclosure within our annual report provides updates on our progress with managing climate change.



PR24 Plan

Our PR24 Plans include those investments which support our core pathway between 2025 and 2030. In the short term these are based on:

- population growth assumptions in line with Office for National Statistics and local planning authority projections;
- medium climate change scenarios in line with guidance from the EA and based on UK Climate Projections 2018 ('UKCP18');
- an environmental destination based on our legal obligations but with studies to better understand how we could do more; and
- an optimistic view of the level of technology and innovation that can be deployed to support delivery of our outcomes, to support our customers.

These pathways are derived from our analysis of the expenditure required to use less water.

Where we have a choice on the pace of improvement by 2050, we have sought to ensure a broadly even bill impact in line with feedback from our customers.

82% of our AMP8 enhancement investment is needed to deliver 2030 statutory obligations, 12% to make a proportionate step towards a statutory deadline required after 2030 and the remaining 6% for low-regrets investment needed to deliver customer request improvements or to mitigate externally driven risks to ensure we are keeping pace with pressures such as climate change.

SEVERN TRENT WATER CLIMATE CHANGE ADAPTATION REPORT 2024

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APPENDIX 1: ACTIONS SINCE OUR 2021 CLIMATE CHANGE ADAPTATION REPORT

In our 2021 climate change adaptation report we committed to undertake numerous actions to adapt to and mitigate against climate change. We have reviewed our previous action plan and provide a summary of progress against these actions. Information in this summary has been verified by third-party assurance of our data and systems as part of our annual performance reporting to our regulator (Ofwat).

2021 commitment	Progress against 2021 commitment
Improve the flexibility of our supply system allowing us to move water around our network. During AMP6 and 7 we will be increasing the deployable output of our Strategic Grid (serving two thirds of our customers) by around 80ML/d.	A combination of new abstraction licences and transfer schemes we have invested in have unlocked approximately 110 ML/d of strategic capacity, which can grow to around 210 ML/d if all were to reach their peak simultaneously. This includes a 7.5 ML/d transfer link from Thornton to Cropston reservoir.
Develop intelligent abstraction management systems; providing us with real time water quality data to inform abstractions and therefore prevent abstraction during peak concentrations, minimising the impact of runoff on our water quality.	Since 2021 we have been monitoring and reporting outturn abstraction at a water body scale using our Annual Abstraction Review (AAR) report. The AAR allocates outturn abstraction to the appropriate surface and groundwater bodies. We have used this annual report to monitor how outturn abstraction compares with the no-deterioration baseline (NDB) target and to highlight where corrective action may be needed. We have now evolved the AAR into a new tool that will allow us to predict deterioration risk and report year on year abstraction performance at an individual site level as well as at ground and surface water body scale. We will use this new 'smart abstraction tool' to monitor year on year abstraction performance against the agreed NDB quantities and we will use it to inform operational decisions.
Reduce leakage by 15% by 2025, and by 50% by 2045.	This year, we deployed capital investment of £56.1 million within both proactive and reactive repairs to our pipes alongside proactive management of our network. We have so far delivered a 10.8% reduction since 2019/20, and are on track to meet our targets.
Increase our supply capacity through delivery of our green recovery project on supply resilience.	We remain on track to complete the Witches Oak water treatment works (WTW) in line with the planned timetable of two years. This is around half the time it normally takes to build a WTW of this size – one of the 10 largest WTWs we own.
Our schools programme will reach 500,000 children, educating on the value of water, responsible sewer use and the importance of hydration to health.	Our schools programme continues to educate record numbers of children living in our region. At the end of our sessions, we ask children to pledge their commitments and, this year, we once again collected a record number of behavioural change commitments. Over 170,000 commitments were made, the highest ever number of pledges we've had in a single year, bringing our AMP7 total to over 400,000. This is on track to reach the 500,000 figure promised by the end of AMP7.
Reduce per capita consumption (PCC) by 3.5% by 2025.	This year we invested £2 million in reducing PCC through customer engagement projects. We are working with customers directly to change behaviours around water usage and provide quick and easy ways to report leaks to us. Our PCC figure for this year is 126.2 l/p/d, which is already ahead of our 2024/25 target.
Deliver 35,000 home water efficiency visits.	We have delivered over 40,000 home water efficiency visits this AMP.
Increasing or optimising deployable output from existing, sustainable sources where possible.	We have increased real-time abstraction monitoring to help optimise deployable output.
Using catchment restoration techniques to improve habitats and ecological resilience to low flows.	In the period 2020-2025 we are delivering 11 environmental measures schemes. The driver for these projects is to improve ecological resilience to low flows. There are 11 catchments which include 17 waterbodies where we have an obligation to deliver environmental measures. Each of these catchments have been investigated for multiple AMPs (in terms of river flow, macroinvertebrates etc) to understand the impact of our groundwater abstraction on surface water flow. Where our groundwater abstraction is impacting surface water bodies we have included in WINEP for a solution to be implemented.
Explore trades in and out of our region to optimise national use of resources.	A number of projects have been initiated to gather evidence on the feasibility of delivering Strategic Resource Options (SROs) that could benefit national and regional long term water security of supply. For example, we're working with Affinity Water and the Canal and River Trust to develop a transfer pipeline from Minworth Sewage Treatment Works, along the Grand Union Canal to Affinity Water in Hertfordshire and North West London.
Work with other flood risk management authorities to develop collaborative solutions to reduce flood risk to 360 properties or areas.	We have collaboratively delivered flood resilience to 57 properties or areas so far since 2020.
Work with landowners and stakeholders to facilitate the construction of enhanced sustainable drainage systems (SuDS) which will deliver social and natural capital benefit.	In our largest-ever such programme to date, we have installed sustainable urban drainage systems ('SuDS') across Mansfield, using natural solutions. A range of interventions will use natural solutions to capture, slow, store and filter rainwater, as well as delivering improved biodiversity and community enjoyment opportunities.
Reduce all types of sewer flooding between 2020 -2025 by 8%.	We are disappointed not to have delivered against our stretching targets for sewer flooding in 2023/4, but nonetheless expect to be frontier in the sector. The last 12 months have seen some of the most challenging weather conditions in our history with sustained rainfall and flash floods resulting in a significant increase in hydraulic flooding incidents across our region. We expect to see an improvement in this external sewer flooding performance moving forward as the benefits of our in-sourced waste network team are realised. We have outperformed our public sewer flooding target every year in AMP7 since the creation of the measure.
We have set an ambition to halve pollution incidents by 2030.	Whilst we achieved zero serious pollutions in 2023/4 year, the unprecedented weather has driven an increase in Category 3 pollution incidents: 239 this year compared with 193 in 2022. A serious pollution is defined as a Category 1 or 2 incident. Having consistently delivered on our total pollutions targets for the last eight years, we are disappointed not to have met our total target on pollutions this year with our 2023 performance reflecting a year-on-year increase of 24%.
Work to improve river quality by removing all RNAGs (Reasons for not achieving good environmental status) from our activities by 2030 where we are required to do so and is technically feasible.	We are committed to five Get River Positive pledges to improve the health of our rivers by 2030. We believe that as of 2023/4 we are responsible for 14% of the RNAGs for rivers in our region and we are committed to reducing this to 10% by the end of 2024/5.
Restore moorland.	We have planted 964 hectares of sphagnum moss to restore peatland in partnership with Moors for the Future since 2020.
Install 400,000 water meters, provide water saving devices in partnership with Save Water Save Money, and help businesses to recycle their grey water.	Since 2020/21 we have installed 405,335 water meters.

APPENDIX 1: ACTIONS SINCE OUR 2021 CLIMATE CHANGE ADAPTATION REPORT

2021 commitment	Progress against 2021 commitment
Improve biodiversity – making it resilient through management and maintenance plans and strategies.	Our biodiversity projects are generally planned with local partners, aiming to deliver long-term resilience and a more joined-up network of biodiversity improvements. Innovation also forms a key part of our approach, such as the use of satellite imagery and remote sensing to inform biodiversity net gain or natural capital surveys of our whole estate. We also have a suite of detailed data that tracks our BNG compliance and other ecological considerations as a metric in project management.
Invest to improve the ecology of up to 2,100km of rivers in our region.	We are ahead of schedule to deliver our WFD obligations, resulting in earlier improvements to our rivers. We are installing more chemical dosing systems, reedbeds and mechanical filters to reduce the amount of phosphorus in the rivers resulting from our wastewater operations. Our first 21 projects, reflecting over 47% of the programme, are in contract, and work has commenced on site at nine projects. This will deliver the majority of our 2025 obligations and result in a significant benefit to the related watercourses.
Create and improve at least 5,000 ha of biodiversity by 2027, through our Great Big Nature Boost initiative.	In 2020 we announced our Great Big Nature Boost, one of the biggest programmes to support nature recovery across our region by 2027 and to plant 1.3 million trees. We said we would work to boost nature across 5,000 hectares of land by 2027 and, having exceeded our target ahead of schedule, in May 2023 we announced that we would be accelerating our target to 10,000 hectares by 2025. Since 2020, we have planted over 823,000 trees, delivered 72 Tiny Forests and have planted 600 acres of new woodland as part of the Commonwealth Legacy Forests. This takes us over halfway towards our 1.3 million target for tree planting by 2027.
Hold regular supplier conferences to convey our environmental and sustainability ambitions.	We regularly engage with our supply chain to build capability, and identify collaborative opportunities to address environmental and social impact; through 1:1 engagement, dedicated supplier forums and events delivered in partnership with organisations such as the Supply Chain Sustainability School. This year the SCSS facilitated an introductory session on climate adaptation with 73 of our suppliers to provide a foundation for further collaborative work together between now and 2030.
As part of our commitment to adopt the principle of ISO 20400 for Sustainable Procurement, complete a high-level risk assessment of supplier categories to identify those vulnerable to the impacts of climate change. For high-risk supplier categories (as identified through the high-level risk assessment) we will explore opportunities to embed climate resilience as a specific consideration within all contingency plans.	In 2024, we introduced a new requirement for all sourcing strategies, contract awards and extensions to seek mandatory sustainability sign-off, ensuring key environmental and social impacts and opportunities, relevant to the industry and activity undertaken, are addressed and delivered in line with our strategy. In the coming year, we will work more closely with key supplier partners and our contract management team to better understand the vulnerabilities of our supply chain in relation to climate change impact, and build upon contingency plans where necessary.

Pilot plant

To support our project at Witches Oak, we have built a pilot plant to replicate the full-scale treatment works. We want to use low carbon technologies to treat River Trent water at Witches Oak. Our pilot plant, which has been operational since December 2022, allows us to test different types of chemicals and optimise the ceramic membrane system that will be an integral part of the main water treatment works when it goes into operation. This allows us to choose the best type of filter media for removing contaminants such as pesticides from water. The pilot plant is also helping improve our understanding of operating procedures, such as the optimum life of filter media and how often we need to maintain it. Essentially, we can stress-test the planned new water treatment plant in a safe environment.

We have been sharing the information gained from this with the wider water industry and the DWI. In addition, we believe this will help the sector to make more informed decisions about emerging water quality risks such as poly-fluoroalkylated substances ('PFAS').



Wetlands

We wanted our floating wetlands to have the longest possible time to grow before we started using them to treat water. To do this, we accelerated the building of new wetland reed beds, with all 31 in place by September 2023, to maximise the number of growing seasons before the water treatment works starts operating.

The floating reed beds are installed on stainless steel frames that are anchored in the lakes. This means we can tow them into position using small boats. On-shore maintenance is much easier as we can bring them to the bank to undertake work. Also, once we are abstracting the water from the wetland to the new Witches Oak WTW, we can optimise their positioning to ensure maximum treatment performance.

We hosted Ofwat, the DWI and the EA during the year. The feedback was positive, recognising the pace of progression. In addition, we will be hosting the DWI to discuss the results of the PFAS trials as it is an emerging risk to the sector.

The reed beds have been an invaluable engagement topic, with visits from local schools over the summer of 2023. We were able to talk about the benefits of using nature to treat water and the importance of securing water supplies for the future.



APPENDIX 2: FULL LIST OF CLIMATE RISKS

For the risk assessment included in this report we have assessed climate risks using the full range of the impact and likelihood definitions below. Risks were scored at business level and as such events that seriously affect small areas or numbers of people can on occasion be judged as low impact. This is not to downplay the severity of such impacts.

Impact

Rating	Definition
Catastrophic	It would result in catastrophic events resulting in failure to deliver the organisation’s functions.
Major	It would result in significant disruption to the organisation’s functional delivery, resulting in the need to conduct re-planning and re-estimating. In the extreme, it may result in failure of the project.
Moderate	It would result in delays or additional work that would exceed existing contingencies, resulting in exceeded time scales, additional resource and/or additional budget requirements.
Minor	It would result in delays or additional work that could be contained with existing contingencies.
Minimal	It would result in negligible delays or disruption.

Rating	Definition
Almost certain	The risk in the process of materialising and may already be under active management as an event.
Likely	Past events have not been fully resolved, effective mitigations not yet identified, control weakness are known and are being managed.
Possible	Past events satisfactorily resolved, mitigations are in place or are on track to be in place, control improvements are under active management.
Unlikely	Events are rare, required mitigations in place, controls are effective.
Highly unlikely	No known event or if known extremely rare, extreme industry-wide scenarios.

Likelihood and impact scores were then multiplied to give risk scores as per the table below.

		Impact				
		Minimal	Minor	Moderate	Major	Catastrophic
Likelihood	Almost Certain	5 / moderate	10 / major	15 / major	20 / severe	25 / severe
	Likely	4 / moderate	8 / moderate	12 / major	16 / major	20 / severe
	Possible	3 / minor	6 / moderate	9 / moderate	12 / major	15 / major
	Unlikely	2 / minor	4 / moderate	6 / moderate	8 / moderate	10 / major
	Highly Unlikely	1 / minor	2 / minor	3 / minor	4 / moderate	5 / moderate

This appendix presents the findings of our risk assessment. The climate drivers in the table are denoted by the legend below.

Climate Driver								
Prolonged heat	Extreme heat	General warming	Prolonged cold	Extreme cold	High rainfall (acute)	High rainfall (chronic)	Low rainfall (drought)	Storms - rain/wind/lightning

APPENDIX 2: FULL LIST OF CLIMATE RISKS

Risk Code	Category	Climate Driver										Risk	Impact	Risk scores				Confidence			Risk Included in our CCRA3 Report	Relevant National Risks (CCRA3)
											Current			2050	2100 (2°C)	2100 (4°C)	Now	2050	2100			
CR01	Water	Yes	Yes	Yes					Yes			Reduced reservoir and river levels resulting in restrictions on the amount of water we can abstract.	Reduced resilience in water supply which could lead to supply failure or requirement for greater work to use alternative sources, more frequent triggering of drought plan with reputational damage.	20	20	20	25	High	Medium	Low	Yes	B3,H10,I8,I9
CR02	Water	Yes	Yes	Yes					Yes			Increased short-term customer demand for water placing our supply under stress.	Failure to supply enough water as well as loss of pressure and discolouration.	20	20	20	20	High	Medium	Low	Yes	B3,H10,I8
CR03	Water						Yes	Yes		Yes		Surface or river flooding leading to damage of clean water assets and disruption of our operations.	Disruption to water supply and increased repair volumes.	9	9	9	12	Medium	Low	Low	Yes	B3,H10,I1,I2,I8
CR04	Water						Yes	Yes		Yes		High river levels and altered river paths causing scour and resulting in damage to clean water assets including bridges, aqueducts and pipe crossings.	Disruption to water supply, increased repair and maintenance costs.	6	6	6	12	Low	Low	Low	Yes	H10,I1,I2,I4,I8
CR05	Water	Yes	Yes				Yes	Yes	Yes	Yes		Flooding and changes to soil moisture leading to ground movement and damage to pipes causing leakage.	Disruption to supply and increased costs to repair.	3	3	6	9	Medium	Low	Low	Yes	B3,H10,I1,I8
CR06	Water						Yes	Yes		Yes		Ground saturation leading to landslides that damage infrastructure such as pipes or aqueducts.	Disruption to water supply, health and safety impacts, increased repair volumes.	9	9	9	12	Low	Low	Low	Yes	B3,H10,I1,I2,I8
CR07	Water						Yes	Yes		Yes		Flooding or storm damage to land and transport networks restricting access to our clean water assets.	Disruption to water supply, health and safety impacts, increased repair volumes.	9	9	9	12	Medium	Low	Low	Yes	H10,I8,B3,I2,B1,H3
CR08	Water	Yes	Yes							Yes		Heat damage of mechanical and electrical equipment on clean water assets disrupting our operations.	Disruption to water supply, health and safety impacts, increased repair volumes.	6	6	6	9	Low	Low	Low	No	B3,H10,I1,I8
CR09	Water	Yes	Yes						Yes	Yes		Fire damage caused by spread of wildfire or combustion of onsite materials impacting our clean water assets and our operations.	Disruption to water supply, health and safety impacts, increased repair volumes.	6	6	6	9	Low	Low	Low	No	B3,H10,I1,I8
CR10	Water				Yes	Yes						Freeze-thaw conditions causing damage to our clean water assets leading to disruption of water supply.	Disruption to water supply, health and safety impacts, increased repair volumes.	9	9	9	9	Medium	Low	Low	No	H10,I1
CR11	Water	Yes	Yes	Yes					Yes			Reduced reservoir and river levels leading to more frequent reliance on groundwater as a source of water to the extent that we breach long-term abstraction limits.	Disruption to water supply, reputational impact, increased repair volumes.	6	12	12	12	Medium	Low	Low	No	H10,I1
CR12	Water	Yes		Yes				Yes	Yes			Gradual change in products and services required by society leading to shifts in patterns of water demand.	Failure to supply enough water as well as loss of pressure and discolouration.	2	4	6	6	Low	Low	Low	No	H10,I1
CR13	Water	Yes	Yes	Yes					Yes			Increased demand for water by multiple abstractors at times of scarcity causing challenge to competing needs.	Disruption to water supply, reputational impact, increased repair volumes.	6	12	12	12	Medium	Low	Low	No	H10,I1
CR14	Water	Yes	Yes	Yes			Yes	Yes		Yes		Extreme weather causing damage to reservoir dams impacting water supply and causing health and safety risks.	Increased maintenance and repair volumes, higher standards, materials.	8	8	15	15	Low	Low	Low	No	H10,I1
CR15	Water						Yes	Yes		Yes		Increased soil erosion and run off from fields reducing water quality in the environment by increasing sediment, pesticide and pollutant loads in watercourses.	Decrease in raw water quality and higher treatment requirements and costs plus less water available for supply. Engagement and delivery of catchment management is impacted.	12	12	16	16	Medium	Low	Low	Yes	B3,H10,I8,N11
CR16	Water	Yes	Yes				Yes			Yes		Regulated changes to groundwater abstraction altering groundwater levels and producing new water quality risks.	Increased risk of contamination from bacti, crypto and turbidity in raw water sources, increasing costs of water treatment to mitigate water quality deterioration.	9	9	9	9	Medium	Low	Low	Yes	B3,H10,I8
CR17	Water	Yes	Yes				Yes			Yes		Regulated changes to groundwater abstraction altering groundwater levels and producing new groundwater flooding risks.	Increasing costs to manage water quality deterioration.	9	9	9	9	Low	Low	Low	Yes	B3,H10,I8
CR18	Water	Yes	Yes	Yes					Yes			Reduced reservoir and river levels leading to reduced water quality in the environment as pollutants are less diluted.	Increasing costs of water treatment to mitigate deterioration of water.	12	16	16	16	Low	Low	Low	Yes	B3,H10,I8,N11
CR19	Water	Yes		Yes								More favourable conditions for invasive species (such as zebra mussels and himalayan balsam) increasing their prevalence and impacting our operations.	Increased control actions required leading to higher treatment costs.	4	4	6	6	Medium	Low	Low	Yes	N2,N12
CR20	Water	Yes	Yes	Yes								Increased bacteriological growth in our systems requiring greater use of chlorine at treatment works and in distribution network to maintain drinking water quality.	Increasing costs of water treatment to mitigate a deterioration of water quality, challenges for biochemical analytics.	9	9	12	12	Low	Low	Low	Yes	B3,H10,I8
CR21	Water	Yes	Yes	Yes								Algal blooms in nutrient-rich waters in rivers and reservoirs impacting our ability to safely treat water and/or reducing quantity of water that can be abstracted.	More treatment is required, increasing operational workload and reducing the volume of water that can be output into supply to meet customer demand necessitating increased operational management and capex investment.	8	8	15	15	Medium	Low	Low	Yes	B3,H10,I8,N12

APPENDIX 2: FULL LIST OF CLIMATE RISKS

Risk Code	Category	Climate Driver										Risk	Impact	Risk scores				Confidence			Risk Included in our CCRA3 Report	Relevant National Risks (CCRA3)
											Current			2050	2100 (2°C)	2100 (4°C)	Now	2050	2100			
CR22	Water	Yes	Yes	Yes								Temperature changes alter properties of stored chemicals (e.g. Chlorate production in disinfection chemicals) producing public health risk.	DWI non-compliance with future standard/public health risk, requiring costs for improved chemical storage.	6	9	9	9	Low	Low	Low	Yes	H10
CR23	Water	Yes	Yes	Yes						Yes		Reduced water availability resulting in an increased need to transport water and compensate rivers.	The establishment of invasive species known to cause significant habitat degradation or loss of other species. This increases the risk of transferring invasive species between river basins and introducing them to sensitive environments.	6	6	6	6	Low	Low	Low	Yes	N12
CR24	Waste						Yes	Yes		Yes		Increased volumes of water overloading of the wastewater network resulting in increased flooding and operation of storm overflows.	Flooding customer properties, premature operation of storm overflows causing potential pollution.	15	15	20	25	High	Medium	Low	Yes	B1,H3,I2,N11
CR25	Waste							Yes				Groundwater table rises causing increased infiltration into sewer network beyond capacity.	Flooding customer properties, premature operation of storm overflows causing potential pollution.	4	4	4	6	High	Medium	Low	Yes	I2,N11
CR26	Waste	Yes	Yes				Yes			Yes		Convective rainfall events causing localised flooding and overloading of sewer network and treatment works.	Flooding customer properties, premature operation of storm overflows causing potential pollution.	10	10	10	15	High	Medium	Low	Yes	I2,N11
CR27	Waste								Yes			Reduced volume of wastewater in sewers causing accumulation of deposits and increased sewer blockage risk.	Flooding customer properties or environmental damage.	2	2	3	6	Low	Low	Low	Yes	I1,I2,N11
CR28	Waste						Yes	Yes		Yes		Prolonged high river levels causing inundation of our wastewater outfalls and overflows interfering with their operation.	Discharge prevented or premature causing flooding of customer properties, premature operation of storm overflows causing potential pollution.	9	9	9	12	Medium	Low	Low	Yes	I2,N11
CR29	Waste						Yes	Yes		Yes		Capacity and storage at sewage treatment works is exceeded necessitating wastewater discharge.	Failure of treatment processes (prolonged periods treating dilute sewage), pollution events and increased costs.	4	4	6	8	Medium	Low	Low	Yes	I2,N11
CR30	Waste						Yes	Yes		Yes		Surface or river flooding leading to damage of wastewater assets and disruption of our operations.	Failure of treatment processes or potential pollution events.	6	6	6	6	High	Medium	Low	Yes	B1,N11
CR31	Waste	Yes	Yes	Yes						Yes		Reduced river levels resulting in less dilution of final effluent and reduced water quality in the environment.	Increased treatment costs and difficulty meeting required environmental standards.	3	6	6	12	Medium	Low	Low	Yes	N1,N11
CR32	Waste						Yes	Yes		Yes		High river levels and altered river paths causing scour and resulting in damage to waste water assets including bridges and pipe crossings.	Disruption of process, increased repairs, environmental damage.	6	6	6	12	Low	Low	Low	No	I2,I8
CR33	Waste						Yes	Yes		Yes		Ground saturation leading to landslides that damage infrastructure such as pipes.	Disruption of process, increased repairs, environmental damage.	9	9	12	12	Low	Low	Low	No	I1,N1,N11
CR34	Waste	Yes	Yes	Yes								Heat damage to wastewater assets (directly or through increased septicity) reduces efficiency and/or disrupts our operations.	Disruption of process, increased repairs, environmental damage.	4	6	6	9	Low	Low	Low	No	I8,N1,N11
CR35	Waste	Yes	Yes						Yes	Yes		Fire damage caused by spread of wildfire or combustion of onsite materials impacting our wastewater assets and our operations.	Disruption of process, increased repairs, environmental damage, release of carbon from stores.	3	6	9	9	Low	Low	Low	No	I1,N1
CR36	Waste				Yes	Yes						Freeze-thaw conditions causing damage to our wastewater assets leading to disruption of our operations.	Disruption of process, increased repairs, environmental damage.	4	4	4	2	Medium	Low	Low	No	I1,N1,N11
CR37	Inter-dependency	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes		Damage to third-party electricity supply causing disruption of our operations.	Disruption of our assets' electricity supply, leading to service disruption and repair costs.	4	6	6	12	High	Medium	Low	Yes	I1,I9
CR38	Inter-dependency	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Changing patterns of fuel and electricity usage by wider society reducing the reliability of our supply.	Reduced reliability of our electricity supply.	4	9	9	12	Low	Low	Low	No	B7 ,H6,I9,I10
CR39	Inter-dependency	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes		Damage to telecommunications and computing systems causing disruption of our operations.	Process disruption and reduced visibility of failures.	4	6	6	12	High	Medium	Low	Yes	I1,I13
CR40	Inter-dependency	Yes	Yes		Yes	Yes	Yes	Yes		Yes		Unfavourable conditions for manufacture and transportation of products and materials causing disruption to our operations.	Process and service disruption, increased operational workload.	4	4	4	12	Low	Low	Low	No	B3,B6,I5,I12
CR41	Inter-dependency	Yes	Yes		Yes	Yes	Yes	Yes		Yes		Frequency and scale of weather events exceeds availability of control assets (e.g. tankers and generators) rendering response insufficient and causing disruption to our operations.	Process and service disruption, customer dissatisfaction, environmental damage.	9	12	12	12	Medium	Low	Low	No	B1,B3,B6,H1,H3
CR42	Inter-dependency	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Reduced habitat condition in our region reduces the capacity of nature to deliver the ecosystem services we rely on, including but not limited to water supply, storage and purification.	Reduced ability to deliver our waste and water services, increased costs to replace ecosystem services.	9	12	12	16	Low	Low	Low	No	H10,N1,N11

APPENDIX 2: FULL LIST OF CLIMATE RISKS

Risk Code	Category	Climate Driver										Risk	Impact	Risk scores				Confidence			Risk Included in our CCRA3 Report	Relevant National Risks (CCRA3)
											Current			2050	2100 (2C)	2100 (4C)	Now	2050	2100			
CR43	Interdependency	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Soil erosion and degradation on our estate reduces the ability to sequester carbon or releases carbon to the atmosphere.	Environmental damage, failure to deliver our climate mitigation activities.	4	9	9	12	Low	Low	Low	Yes	N4,N5,N7,N18	
CR44	Interdependency	Yes	Yes						Yes	Yes	Wildfire damage to natural assets and ecosystems on our estate.	Loss of ecosystem services, environmental pollution, increased costs, health and safety.	4	4	6	9	Low	Low	Low	No	H1,H7,N1,N6	
CR45	Interdependency	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Disruption to farming and changes in farming practices making the sludge to land route unviable.	More storage required on our sites, requirement for alternative sludge destination.	6	6	9	16	Medium	Low	Low	Yes	N6,N7	
CR46	Interdependency	Yes	Yes				Yes	Yes		Yes	Farming in our region disrupted by unfavourable weather conditions	Less effective catchment management water quality control.	4	6	9	12	Low	Low	Low	Yes	N6,N7	
CR47	Interdependency	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Reduced availability and wellbeing of our employees and supply chain partners due to transport disruption, impacts on other services (e.g. schools) or their personal lives.	Operational disruption, health, safety and wellbeing risk.	2	6	9	12	Medium	Low	Low	No	H1,H3,H12,H13,I12	
CR48	Business	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Scale and frequency of weather events lead to reduced customer satisfaction with our services.	Negative impact on customer experience and more customer complaints.	6	6	9	12	Medium	Low	Low	Yes	B6,H10	
CR49	Business	Yes	Yes		Yes	Yes	Yes	Yes		Yes	Our property assets (including buildings, on-site transport and land) are damaged causing business disruption.	Repair costs, health and safety risk (projectiles & associated with repair), increased maintenance, disruption of services.	4	9	12	15	Low	Low	Low	No	B1,B3,B5,H5,I1,I12	
CR50	Business	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Our property assets are not fit for purpose or perform less efficiently requiring their enhancement.	Mitigation costs, increased operational expenditure.	4	9	12	15	Low	Low	Low	No	B5,B6,H5,I1	
CR51	Business	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Failure of our own electricity assets causing disruption to our operations.	Disruption of our assets' electricity supply.	2	2	6	9	High	Medium	Low	No	I1,I9	
CR52	Business	Yes	Yes	Yes							Increased cooling and ventilation required for assets and people to work within safe limits.	Infrastructure updates required, change in energy and operational costs.	6	9	9	16	Low	Low	Low	No	B5,H7	
CR53	Business	Yes	Yes		Yes	Yes	Yes	Yes		Yes	Capital programme is delayed by unfavourable conditions on site.	Financial penalties, reputational damage, increased costs to deliver programme.	9	9	9	9	Medium	Medium	Low	No	B4,I1,I2	
CR54	Business	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Health and safety risk to public at our visitor sites.	Increased mitigation costs, reputational damage.	2	4	6	9	Medium	Low	Low	No	B1,H3	

APPENDIX 3: ACTION PLAN

Action Type Key

- 1- Scoping, monitoring and identifying impacts and/or risks
- 2- Consideration of impacts, risks and/or likely actions with stakeholders
- 3 - Implementation of actions to address impacts and/or risks and maintain delivery of the organisation's functions
- 4 - Monitoring actions, evaluation against original plans, reassessment of risks, management system audit (against adaptation best practice)

The table below presents our current Action Plan. Our business-as-usual project management processes monitor and evaluate project outputs and outcomes through design and delivery. We additionally conduct programme-level assurance activities to evaluate the extent to which benefits are delivered. Although climate is one of many drivers of outcome performance, our externally assured performance against performance commitments and outcome delivery incentives (ODIs) provides additional monitoring and evaluation of the effectiveness of our actions. While multiple teams within Severn Trent hold responsibility for delivery of these actions, the Climate Change Team will monitor and track all actions to ensure their completion.

Ref	Category	Action	Action Type	Implementation Timescale	Risk Addressed
1	Water	We have completed the Derwent Reservoir Scour project, which involved filling a 210m ³ scour at the inlet of Ashop. The hole was filled with over 450 tonnes of aggregate, and a new inlet spillway was constructed.	3	Recently implemented	CR01
2	Water	We actively communicate with our customers on water efficiency initiatives throughout the year but specifically increase our targetted messaging during hot weather. This will continue going forward and we anticipate our new customer service system to play a leading role in this targetted approach.	2	Recently implemented	CR01, CR02
3	Water	We have delivered over 40,000 home water efficiency visits since 2020.	3	Recently implemented	CR01, CR02
4	Water	We have now installed over 450,000 water meters, which help maintain water supply by reducing consumption.	3	Recently implemented	CR01, CR02
5	Water	We have delivered a 10.8% reduction in leakage since 2019/20 and are on track to meet our target of 15% by 2025.	3	Recently implemented	CR05
6	Water	We have identified high-risk locations for landslides and use risk registers to ensure we have adequate plans for major assets.	1	Recently implemented	CR06
7	Water	Each summer we ensure there are dedicated volunteers from across the organisation to be able to deliver bottled water customers in the event of an emergency. We also have a drought action team to manage our incident response in the event of drought events.	3	Recently implemented	CR01, CR02
8	Water	We have installed algal monitors at 4 reservoirs to help us to better understand and manage algal concentrations.	1	Recently implemented	CR21
9	Water	We have installed floating wetlands across gravel beds at Witches Oak, from which water is abstracted for treatment at Church Wilne. These pre-treat water, reducing carbon emissions and improving 46 hectares of biodiversity.	3	Recently implemented	CR44
10	Water	As part of our AMP7 WINEP programme we are implementing abstraction licence reductions across our region. The intention of this activity is to support good ecological status by leaving more water in the environment.	3	Before 2030	CR01, CR18
11	Water	We will raise the height of the Draycote dam to increase the storage volume of Draycote reservoir to support water resource needs within the Strategic Grid zone.	3	Before 2030	CR01, CR13, CR18
12	Water	We have a Green Recovery Project to build a new water treatment works at Witches Oak. This project will supply enough water every day for another city the size of Derby.	3	Before 2030	CR01, CR13
13	Water	We will build a Carsington - Tittesworth Pipeline to deliver up to 30 ML/d of water to our North Staffs water resource zone by supporting Tittesworth Reservoir storage. This will help to meet our customers' future water needs in that zone.	3	Before 2030	CR01, CR13
14	Water	We will improving the resilience of our clean water network by constructing 6 resilience pipelines to transfer water to where it is needed most.	3	Before 2030	CR01, CR02
15	Water	We are expanding our Network Response Team capability from 50k up to 180k and will increase the number of tankers in our fleet to keep our customers on supply in the event of an incident.	3	Before 2030	CR01, CR02
16	Water	We have partnered with Nectar, the UK's largest loyalty scheme and customer behaviour experts, and will use smart meter gamification to incentivise customers to reduce their consumption by awarding points for water efficient behaviour.	3	Before 2030	CR01, CR02
17	Water	We will invest nearly £300m to lessen water demand, including rolling out smart meters to one million customers by 2030.	3	Before 2030	CR01, CR02
18	Water	We will renew over 1300km of mains over the course of AMP8 to drive down leakage and ensure our most at risk assets are replaced.	3	Before 2030	CR05
19	Water	We have planned treatment expansions at two of our four large water treatment works on the River Severn (Shelton and Strensham). This will provide additional resilience and flexibility to manage peaks in turbidity and pollutant loading.	3	Before 2030	CR15
20	Water	We will deliver the AMP8 components of our multi-amp UV/Crypto investment programme, which will involve installation of new UV treatment at six of our groundwater sites that have a high risk of contamination with Crypto, based on our Drinking Water Safety Plans.	3	Before 2030	CR16
21	Water	We will conduct more groundwater modelling and investigations to understand current climate vulnerabilities.	1	Before 2030	CR16, CR17
22	Water	We are working with the Environment Agency nationally to understand the impact on flooding caused by rising groundwater levels as a result reducing groundwater abstraction.	1	Before 2030	CR17
23	Water	We plan to install nitrate removal at two sites providing added resilience for changes in groundwater levels.	3	Before 2030	CR16, CR17, CR21
24	Water	We plan to install a new treatment process stream at Whitacre, which alongside nutrient management in the catchment will reduce the risk of future algal blooms.	3	Before 2030	CR21

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Ref	Category	Action	Action Type	Implementation Timescale	Risk Addressed
25	Water	At all our reservoir sites we are rolling out the use of new algal probes and sondes following one of our innovation projects – these give immediate warnings of algal bloom development.	1	Before 2030	CR21
26	Water	We will invest £605m to prevent nutrient pollution by removing pollutants from treated wastewater and investing in wetlands to absorb nutrients.	3	Before 2030	CR15
27	Water	We will continue development of our 6 strategic resource options projects (to support the water supply of the SE of England) to Gate 3 of RAPID.	3	Before 2030	CR01, CR02
28	Water	We have replaced more than 7,300 lead supply pipes for customers in Coventry and Bomere Heath and will continue this Green Recovery programme to replace up to 25,000 in this area. Benefits include improved asset resilience and reduced need for phosphate treatment to minimise metal leaching.	3	Before 2030	CR01, CR02
29	Water	We're also constructing two new pumping stations - one at Melbourne WTW and one near Hathern, as part of the resilience improvements to our water network.	3	Before 2030	CR2, CR12, CR13
30	Water & Waste	We have completed a business wide Invasive Non-Native Species risk assessment and implemented mitigation measures to increase our bio-security.	1	Recently implemented	CR19
31	Water & Waste	We have enhanced biodiversity on 11,500 hectares of land in our region as of April 2024.	3	Recently implemented	CR44
32	Water & Waste	We have planted over 823,000 trees since 2020.	3	Recently implemented	CR42, CR43
33	Water & Waste	We have planted 964 hectares of sphagnum moss to restore peatland in partnership with Moors for the Future since 2020.	3	Recently implemented	CR44
34	Water & Waste	We have launched our Get River Positive Programme	1,2,3	Recently implemented	CR15
35	Water & Waste	We have published a natural capital account articulating the ecosystem services delivered by our landholdings.	1	Recently implemented	CR42
36	Water & Waste	We will continue ongoing lightning protection assessments for high-risk assets.	1	Before 2030	CR30
37	Water & Waste	We will implement permanent flood defences on sites and key assets to try and mitigate the impacts of surface flooding.	3	Before 2030	CR03, CR04, CR32
38	Water & Waste	All of our sites are subject to DSEAR regulations. Our larger sites may come under COMAH regulations. We have a capital maintenance block for work to maintain/ ensure compliance.	3	Before 2030	CR09, CR35
39	Water & Waste	We will implement other resilience options for reducing the impact of any site flooding such as raising control panels and pumps above flood levels.	3	Before 2030	CR03, CR04, CR32
40	Water & Waste	We will work with others across the region and invest £50m across our clean water and wastewater sites to increase their resilience by protecting them from power outages and (fluvial and pluvial) flooding. Solutions we will consider include additional mobile generators and flood defences on sites.	3	Before 2030	CR03, CR07
41	Water & Waste	We will create 2 biosecurity roles within our Biodiversity & Ecology Team.	1,3	Before 2030	CR19
42	Water & Waste	We will ensure all new relevant assets will comply with IED regulations. This includes providing double skinned pipes for above ground assets to reduce the likelihood of damage from colder temperatures.	3	Before 2030	CR10, CR36
43	Water & Waste	We will enhance biodiversity by 0.73 units per 100km ² in our region.	3	Before 2030	CR42, CR43, CR44
44	Water & Waste	We are delivering our Green Recovery Bathing Rivers programme to improve 50km of river across Shropshire and Warwickshire.	3	Before 2030	CR42, CR43, CR45
45	Water & Waste	We will update and expand our natural capital account to give us a better understanding of the roles played by nature on our landholding.	1	Before 2030	CR42, CR43, CR46
46	Water & Waste	We've installed water quality monitoring sondes, which measure ammonia, dissolved oxygen, pH, temperature and turbidity upstream and downstream of CSOs at 25 sites across our catchment. Between 2025 and 2030 we aim to have monitors covering 25% of our outfalls.	1	Before 2030	CR24, CR25, CR26, CR28
47	Water & Waste	We will collaborate with stakeholders in the Avon catchment to develop mechanisms to support joint funding streams and partnership projects using nature to deliver priority ecosystem services to the area.	2	Before 2030	CR42, CR43
48	Waste	We installed over 7,000 sewer sensors in 2023.	3	Recently implemented	CR24
49	Waste	We have completed the Mansfield Sustainable Flood Resilience Project - a £76 million investment to create rain gardens that will help to reduce the amount of rainfall that would end up in our sewer network.	3	Recently implemented	CR24, CR25, CR26, CR28
50	Waste	We have developed our first Drainage and Wastewater Management Plan to help us better understand long-term wastewater capacity investment needs.	1	Recently implemented	CR24, CR25, CR26, CR28

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Ref	Category	Action	Action Type	Implementation Timescale	Risk Adressed
51	Waste	We have established an Infiltration Management Steering Group developing tools to support analysis of groundwater infiltration risks across the Severn Trent region.	1	Recently implemented	CR25
52	Waste	We have trialled new solutions to reduce infiltration at sites including Slimbridge and Twynning including products that fill cracks in pipes from the inside allowing infiltration reduction into the sewer network from both the public sewer and private lateral sewers.	1,3	Recently implemented	CR25
53	Waste	We have installed storm overflow monitors at 100% of our sites as of December 2022.	3	Recently implemented	CR24, CR29
54	Waste	We have developed an improved storm readiness strategy.	1,3	Recently implemented	CR26, CR29, CR30
55	Waste	We have improved our analytics capabilities to conduct in-depth evaluation of storm impacts across our operations.	1	Recently implemented	CR26, CR29, CR30
56	Waste	We have reduced our contribution to 'Reasons for Not Achieving Good Ecological Status (RNAGS) in local rivers to 14% through our Get River Positive programme.	1,3	Recently implemented	CR31, CR15, CR28, CR29
57	Waste	We have developed improved storm readiness plans and contact our customers ahead of expected challenging weather conditions.	1,3	Recently implemented	CR14, CR48
58	Waste	We have conducted site-specific climate risk assessments for all of our bioresources sites.	1	Recently implemented	CR45, CR46
59	Waste	We have carried out process level climate risk assessments for our sewage treatment works.	1	Recently implemented	CR29, CR30
60	Waste	We have launched a storm overflow map to enable people to see the investment plans taking place on all storm overflows around the region.	1,2	Recently implemented	CR24, CR27, CR28
61	Waste	We have insourced our reactive sewer services team to increase the control we have over our response activities.	3	Recently implemented	CR24, CR26, CR27
62	Waste	We are enhancing our Waste Operational Control Centre to improve our response to weather events.	1,3	Before 2025	CR24, CR25, CR26, CR28
63	Waste	We are working with local authorities and the Environment Agency through our flooding partnership schemes to reduce flooding via Flood Management Plans (natural flood management and catchment) and EA Flood Alleviation Schemes.	2,3	Before 2030	CR24, CR25, CR26, CR28
64	Waste	We will carry out targeted nitrate investigations around our impounding reservoirs by 2030 to establish if upstream sewage treatment works are meaningful nitrate contributors.	1	Before 2030	CR21
65	Waste	We will deliver the £1.7bn investments through our Storm Overflows Action Plan. This includes 700 new storage setups at treatment works, creation of more than 70 reed beds to treat sewage at storm overflows, 25 treatment units to expand capacity at treatment works, 198 enhancements to increase the flow of sewage to treatment works and installing 130 flap valves to stop river water from overloading the network.	1,3	Before 2030	CR24, CR25, CR26, CR27, CR28
66	Waste	We are working in partnership with the Environment Agency scoping flood alleviation schemes where there are interactions with the sewer network.	2,3	Before 2030	CR24, CR25, CR26, CR27, CR28
67	Waste	We will deliver our cycle 2 drainage and wastewater management plan.	1	Before 2030	CR24, CR25, CR26, CR27, CR28
68	Waste	We will install 149 flow to full treatment (FFT) monitors & monitoring at 324 emergency overflows.	1	Before 2030	CR24, CR25, CR26, CR28
69	Waste	We will install 1000 river quality monitors.	1	Before 2030	CR31
70	Waste	Our programme of IED work includes provision of secondary containment for Bioresources assets. This will include the provision of areas of concrete that could provide a fire break.	1	Before 2030	CR35
71	Waste	We will ensure 25% dry solids at all of our sites by installing sludge logger/ controllers and some cases additional centrifuges.	3	Before 2030	CR45
72	Waste	We will deliver our AMP8 bioresources enhancement investment to increase cake pad storage capacity at our bioresources sites where space permits and create drying and pelletisation plants at Strongford and Finham as storage cannot be increased	3	Before 2030	CR45, CR46
73	Waste	We will integrate our bioresources climate risk assessments into our environmental management system.	1	Before 2030	CR45, CR46
74	Waste	We will introduce or enhance existing reduction of ammonia or BOD at 42 sites resulting in 346km of river benefitting from sanitary load reduction.	3	Before 2030	CR18, CR28, CR31
75	Waste	We're installing ozone treatment at three sewage treatment works. This additional treatment process results in final effluent that goes above and beyond our current regulatory requirements.	3	Before 2030	CR18, CR28, CR32
76	Waste	We're developing a water quality map that will give an insight into key ecological health indicators and a risk forecasting map covering the Leam, Avon and Teme.	1,2	Before 2030	CR15, CR16, CR18, CR31, CR46
77	Waste	We will use AI to develop new software to provide an early warning system for potential floodings and pollutions based on real time data and model simulations.	1,3	Before 2030	CR7, CR24, CR25, CR26, CR27, CR28, CR30

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Ref	Category	Action	Action Type	Implementation Timescale	Risk Adressed
78	Waste	We will install two reactive media reed beds at Dalbury Lees and Hungerton to aid the removal of phosphorus.	3	Before 2030	CR18, CR28, CR31
79	Waste	We're also building a 'storm event generator' at our Sernal test facility so we can trial different CSO treatment technologies. These allow us to treat storm overflow activations to reduce the impact on our rivers. So, in an emergency, if we can't stop the activation, we can treat it.	1,3	Before 2030	CR24, CR25, CR26, CR28
80	Interdependency	We have delivered 31 catchments through our farming for water performance commitment since 2020. This work help us to manage water quality in the environment.	2,3	Recently implemented	CR15, CR18, CR21
81	Interdependency	We have increased storage and diversified supply chain for key products such as chemicals.	2,3	Recently implemented	CR40
82	Interdependency	We will include climate resilience in future supplier selection criteria.	2,3	Recently implemented	CR40
83	Interdependency	We will deliver our AMP8 catchment management programme, working directly with farmers to deliver a suite of integrated environmental solutions, all with the aim of protecting river health and drinking water quality.	2,3	Before 2030	CR15, CR18, CR21
84	Interdependency	We will continue to collaborate with other organisations to build a regional adaptation plan within Severn 2100+.	2,3	Before 2030	CR24
85	Interdependency	We will undertake a more detailed mapping exercise of our interdependencies.	1,2,3	Before 2030	CR37-CR47
86	Interdependency	We will work with partners in our region to understand our transport vulnerabilities better.	1,2,3	Before 2030	CR40, CR47
87	Interdependency	We will help 100,000 people at risk of water poverty by providing support with skills and training opportunities as well as help with finding work as part of our Societal Strategy.	2	Before 2033	CR47
88	Business	We have recently developed an extreme heat policy and approach.	3	Recently implemented	CR44
89	Business	We have increased our energy self-sufficiency and now generate 60% of our own energy requirements which mitigates the reliance on grid supplies.	3	Recently implemented	CR37, CR38
90	Business	We have updated our freeze-thaw approach using learnings from the 2018 and 2022 cold weather events.	3	Recently implemented	CR10, CR36
91	Business	We have achieved certification for our approach to asset management in line with ISO 55001.	3	Recently implemented	CR49, CR50
92	Business	We will review our asset standards to reflect future climate more comprehensively.	1,3	Before 2030	CR49, CR50
93	Business	We will invest £2.4m this year in our energy efficiency programme.	3	Before 2030	CR37, CR38
94	Business	We will conduct site-specific climate risk assessments across our most important sites.	1	Before 2030	All
95	Business	We will perform an observation exercise during our response to an extreme weather event to enable us to capture impacts on our business comprehensively.	1	Before 2030	All
96	Business	We will further develop our long-term monitoring plan including expanding our work on climate-relevant thresholds, triggers and indicators.	4	Before 2030	All
97	Business	We will further our continuous improvement of risk assessment processes and embedding of climate adaptation into our business activities	1,4	Before 2030	All
98	Business	We will expand our use of techniques to visualise interdependencies in our system, cascading failures and clustered impacts.	3	Before 2030	All
99	Business	We will compile and refresh a library of case studies relating to climate adaptation that will be publicly available and will share insights on our understanding and management of specific climate risks.	2	Before 2030	All
100	Business	We will work to better understand the financial impact of our climate risks.	1	Before 2030	All