

Anglian Water's Climate Change Adaptation Report 2020 - Summary

Purpose of this report

This report describes how we are adapting to climate change. It is a summary of our full [Adaptation Report](#), submitted to government in December 2020

An introduction from our Chief Executive

Together with rapid population growth in our region, climate change constitutes Anglian Water's most acute challenge. Adapting to it, both to ensure resilient supplies for the people we serve, and to protect and enhance our environment, has been central to the way we do business for many years.

We have led the water industry by enshrining our social and environmental purpose into our company constitution; in 2019 we took the bold step of changing our Articles of Association to ensure, for the long term, that our directors will always consider the impact of their decisions on our communities and the environment.

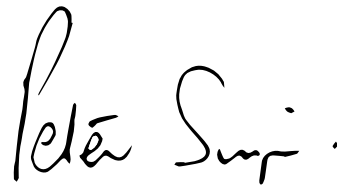
This report summarises the wide-ranging actions we have already taken to adapt to climate change, and the further steps we will take over the next five and 25 years to address the risks it poses through innovation, collaboration and education.

In the face of ever greater extremes of weather, we cannot assume that our collective efforts to mitigate the impacts of climate change will limit global temperature rises to 1.5-2°C. Our next steps, therefore, will include updating all our plans to

use the latest climate science and using scenario planning to prepare for a less optimistic scenario of a potential 4°C rise in global temperatures - what we describe as getting #FitforFour.

Yet while it can be tempting to think about the changing climate solely in terms of risk, we also see adaptation as an opportunity. Adapting well to climate change will enable us to meet the ambitious goals we have set and deliver the commitments we have made to our customers in a way that keeps bills affordable.

So as we look ahead, we do so in the certain knowledge that there is a huge task ahead of us, but with optimism that delivering on it will help us fulfil our purpose: to bring environmental and social prosperity to the region we serve through our commitment to Love Every Drop.



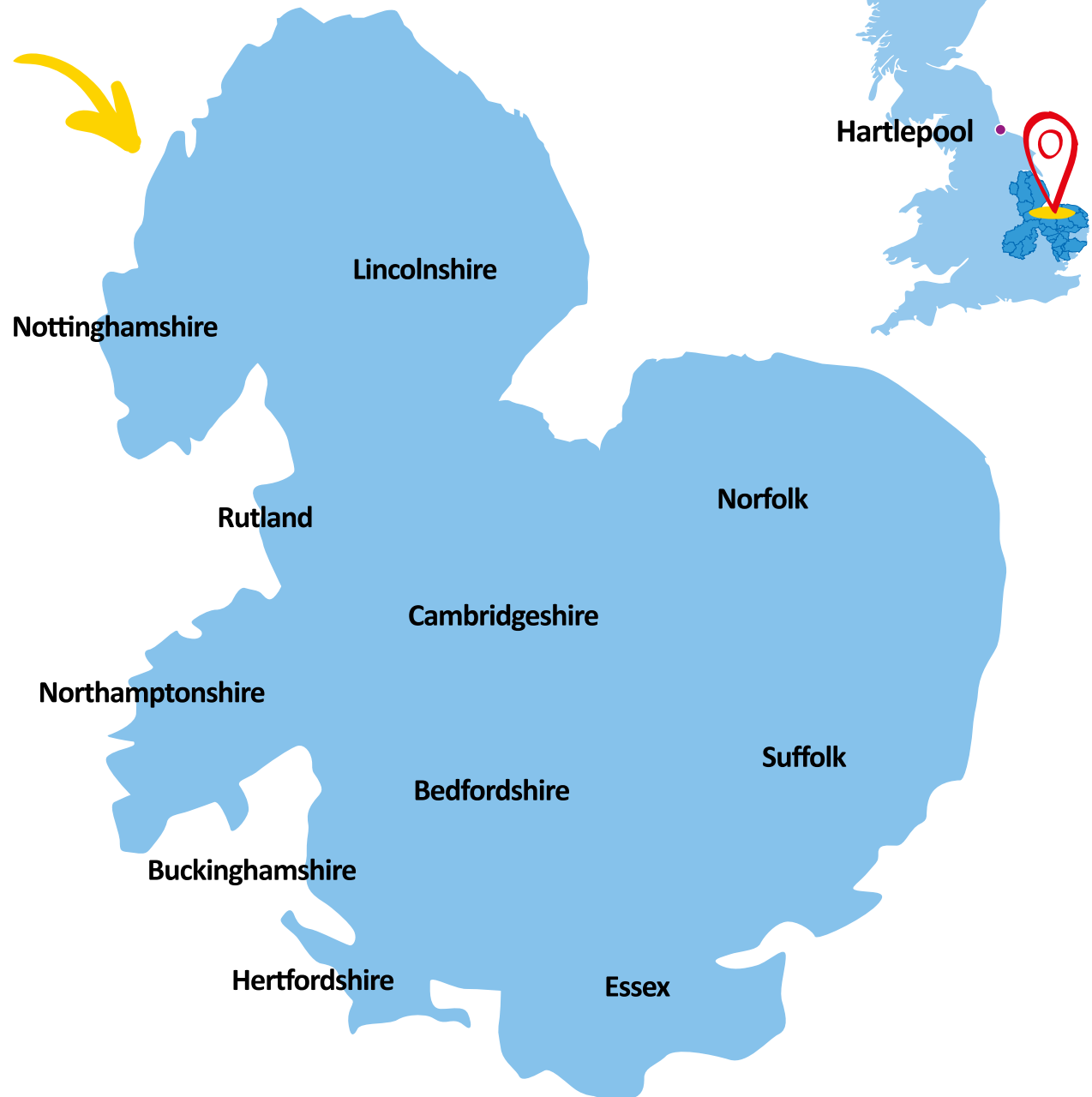
Peter Simpson
CEO, Anglian Water



Our region is particularly susceptible to climate change

Our region – low lying, with a long coastline and low rainfall – is particularly susceptible to climate change. Water resources are already scarce, and rising temperatures will reduce them further, with the threat of more frequent droughts. Yet at the same time, rising sea levels and more intense rainfall will also lead to more flooding.

- **Demand for water** will rise but available water won't
- **Population** is expected to rise – around **1 million** homes to be built in the next 25 years
- Our region is the **driest** in the UK – but warm weather leads to heavy downpours
- **28%** of our region is below sea level
- Our region has **1,200km** of coastline
- **25%** of the nation's cereal crop is grown here in East Anglia, and **75%** of the nation's shellfish industry is located on the East Coast
- As a **low-lying region**, lots of energy is needed to pump water around.



We recognise climate change as one of the biggest challenges we face

The challenges we face are described more fully in our [Strategic Direction Statement](#)

We have set four long-term ambitions - all of which relate to climate change

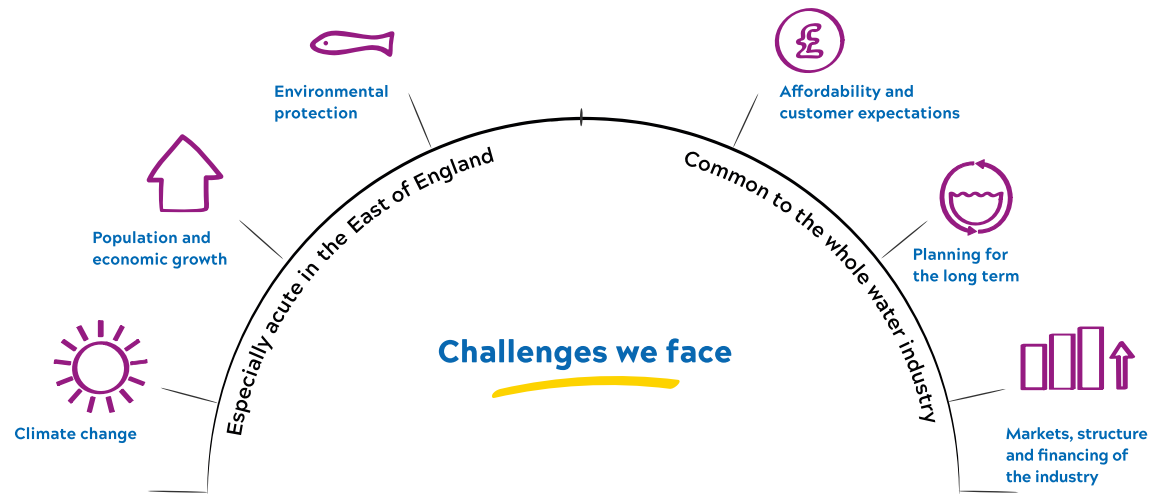
All of the long-term ambitions we set out in our Strategic Direction Statement relate to climate change.

The most relevant to this Adaptation Report is our ambition to make the East of England resilient to the risks of drought and flooding.

We have also committed, with others in the water industry, to end our contribution to climate change by becoming a net zero carbon business by 2030.

Furthermore, unless we adapt to the impacts of our changing climate we will not be able to achieve the improvements in ecological quality whilst enabling sustainable growth.

Only by delivering on these ambitions will we achieve our purpose to bring environmental and social prosperity to the region we serve through our commitment to Love Every Drop.



Our long term ambitions

- *** Make the East of England resilient to the risks of drought and flooding.
- Enable sustainable economic and housing growth.
- Work with others to achieve significant improvement in ecological quality across our catchments.
- Be a net zero carbon business by 2030.

We have assessed our climate-related risks and are responding to them

Our most recent risk assessment identified more than 40 material risks. The risks have been scored in terms of the likelihood of them occurring and the consequence if they did occur. The approach we have used is consistent with how we assess all other risks that the business is exposed to.

We have also assessed the risk over different time horizons:

- A** 2045 target - the level of risk that we are targeting after we implement actions between now and 2045
- B** 2025 target - the level of risk that we are targeting having implemented the actions planned in our current business plan.
- C** Current - the current level of risk, taking account of actions we have already taken/ are taking
- D** Inherent - the level of risk if we took no action.

For reporting purposes, we have focused on the most significant risks and aggregated them under seven broad categories.

These seven 'headline' risks have been further categorised into physical, transition and cross-cutting risks.

Physical risks

These are the risks associated with the physical effects of climate change. For Anglian Water they include the risk to our water supplies, flooding from our sewers, flooding of our sites and the impact of climate change on the natural environment on which we depend.

The steps we are taking to make the East of England resilient to the risks of drought and flooding are described in the next section.

Drought and flooding are not our only climate-related risks. The other headline risk is to the natural environment on which we depend. We have a duty to protect and enhance the environment from which we borrow water - indeed our commitment to doing so is set out in our Purpose and Articles of Association - so assessing and addressing the environmental risks posed by climate change is fundamental to our operation.

We own 49 Sites of Special Scientific Interest (SSSIs) and over 150 Local Wildlife Sites, and more than 2.5 million people visit our waterparks each year.

In response to our relationship with the natural environment we have done studies to understand the biodiversity in our region and the sensitivity of our habitats to climate change.

Our full report describes how we are stopping the abstraction of water from sensitive sites and



Ingoldisthorpe wetland

working with nature to provide our vital service to customers.

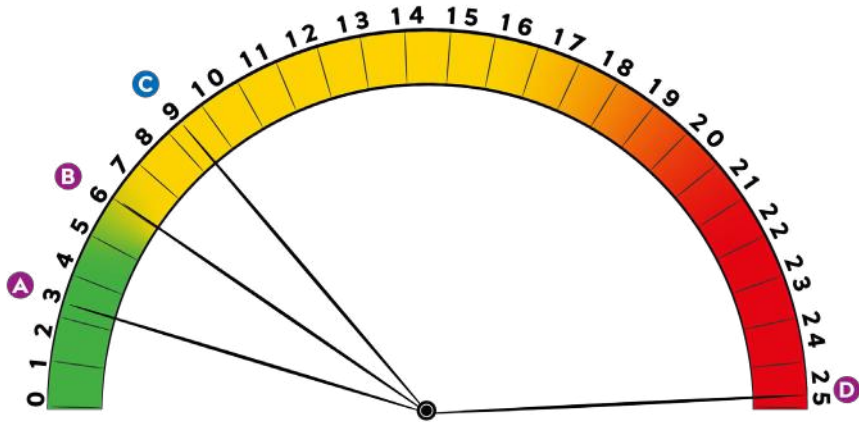
One such example of working with nature, and which is the first of many, is a wetland treatment site at Ingoldisthorpe. It is the first of its kind in England and has been created in partnership with the Norfolk Rivers Trust. The site works as a natural treatment plant for millions of litres of water a day.

Used but treated water passes through the wetland to be further filtered and cleaned by the wetland plants before it's returned to the River Ingol.

This additional, natural filtering process further improves the quality of water being returned to the river, benefiting the whole of the river, which is a spring-fed chalk stream.

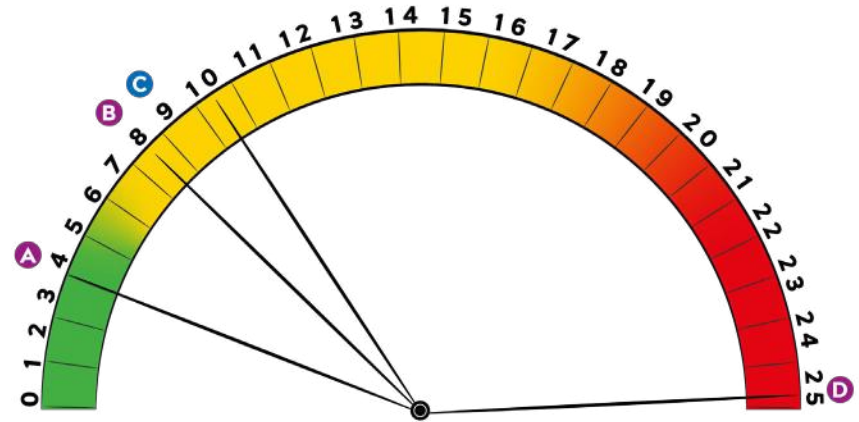
Aside from having a practical purpose the wetland is a huge biodiversity asset, attracting breeding birds, amphibians, bats and water voles to the local environment.

Water supply



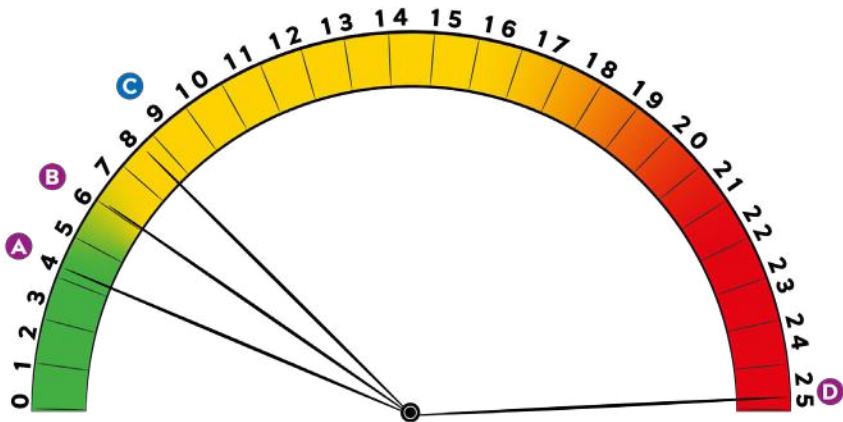
- A** 2045 target
- B** 2025 target
- C** Current rating
- D** Inherent rating

Sewer flooding



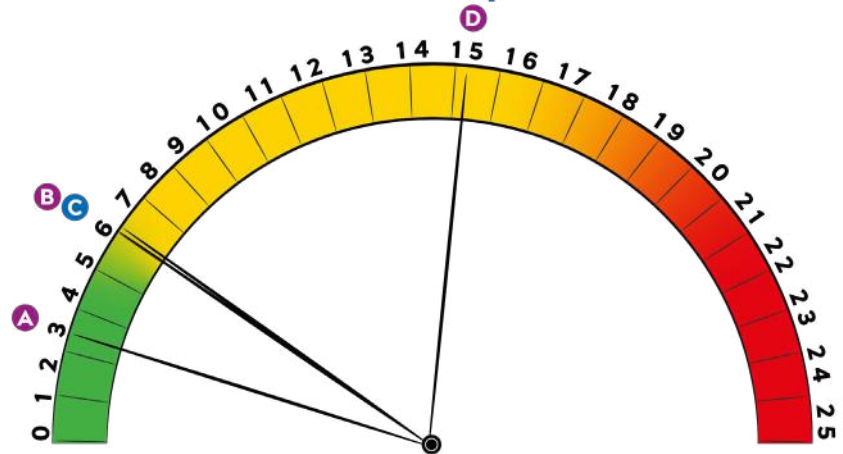
- A** 2045 target
- B** 2025 target
- C** Current rating
- D** Inherent rating

Flooding of our sites



- A** 2045 target
- B** 2025 target
- C** Current rating
- D** Inherent rating

Natural capital



- A** 2045 target
- B** 2025 target
- C** Current rating
- D** Inherent rating

Transition risks

These are the risks associated with the **transition** to a low-carbon economy. In our report we describe two of the most significant risks.

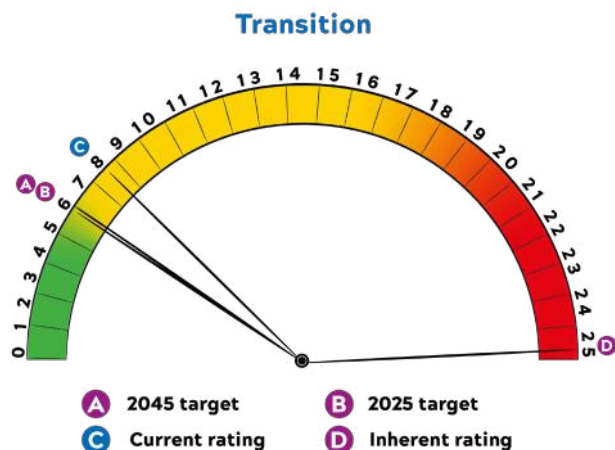
The first risk that we describe relates to the fact that the finance sector is increasingly attracted to organisations that can demonstrate they understand and are preparing for the impacts of climate change.

This is one of the reasons that, in 2017, we became the first European utility company to issue a sterling Green Bond to finance our investment in the region.

The other transition risk relates to the impact of policy changes on our energy and carbon costs.

Left unmanaged our energy costs could become increasingly volatile and ultimately unaffordable. If managed effectively, this transition can also provide opportunities.

Generating our own renewable energy is one such example. We plan to generate 44 per cent of our energy requirements from on-site renewables by 2025.



Cross-cutting risks

To assess and manage the physical and transition risks described above, we work closely with many others.

Our ability to adapt to climate change depends on them and they depend on us.

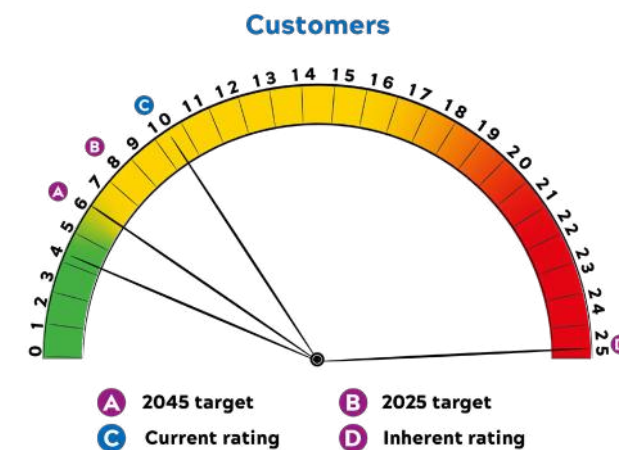
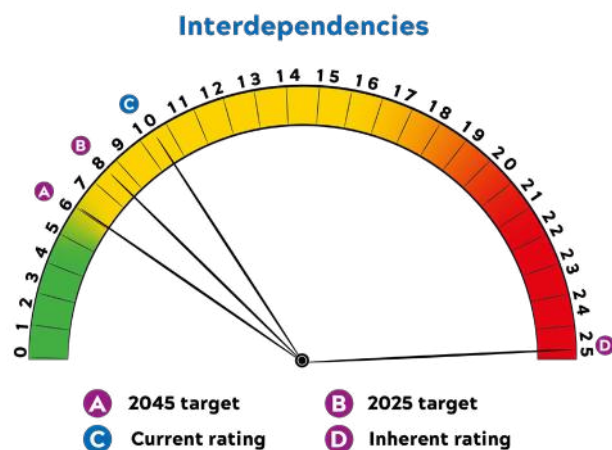
To understand these **interdependencies**, we work with many organisations, including power companies, local authorities, environmental organisations and government.

If we did not manage these risks collaboratively it would lead to poor outcomes for **customers** and the environment and ultimately undermine our legitimacy as a provider of essential public services.

By working together we are able not just to minimise risk but to maximise opportunities for environmental and social prosperity (see Future Fenland, page 11).

Our other key cross-cutting risk relates to our customers. As well as being exposed to climate-related risks, customers can also play an important role in helping us manage these risks.

For example, we actively engage with them to save water, keep sewers clear and reduce and slow the rainwater entering our sewers.



We are making the East of England resilient to the risks of drought and flooding

Drought

Adapting to climate change is embedded into everything we do, including our long-term planning. For example, we have been assessing the impact of climate change on water resources since the 1990s.

The primary way in which we manage this risk is through a 25-year Water Resource Management Plan and a Drought Plan.

In preparing our latest Water Resources Management Plan we accounted for uncertainty in the future climate by modelling the impact of a range of climate change scenarios on the supply-demand balance - that is, the balance between the amount of water we can supply and the amount required to meet our customers' needs.

In response we have developed a 'twin-track' approach to both manage demand and develop new sources of supply.

Reducing leakage to record levels and encouraging behaviour change through the most extensive coverage of meters in the water industry are two important ways we are managing demand.

But demand management on its own is not enough to respond to the impact of climate

change and growth. We also need to invest in securing water supplies for future generations. In order to do so, we are currently delivering one of the most ambitious infrastructure programmes we have ever undertaken.

As set out in our Water Resources Management Plan, we are creating a strategic network of up to 500km of interconnecting large diameter pipelines and associated pumping equipment, as well as upgrading existing infrastructure to allow water to be transferred right across Anglian Water's region.

By installing new pipework to better join up the existing water network we will be able to move water more freely around the region in stages, from areas of water surplus in north Lincolnshire down to the south and east of the region, where it is less readily available.

This programme will transform our resilience to drought while also giving many more customers a second source of supply, further strengthening the resilience of our network.

Flooding

To reduce the risk of flooding from our sewers and of our sites we are working in partnership with others.

Partnership working is not only more effective than working alone, it also delivers mutual benefits and cost savings compared with trying to resolve flood problems independently.

Long-term plans are also used to prepare for the impacts of our changing climate.

In 2018 we published our first Water Recycling Long Term Plan and we are now working with a range of stakeholders to evolve this into a long-term Drainage and Wastewater Management Plan.

Where necessary we invest in larger diameter sewers and flood protection barriers, but we prioritise more sustainable forms of flood protection, so we are working with customers to keep our sewers clear of blockages and surface water out of our sewerage network.

We also favour Sustainable Drainage Systems, known as SuDS, which help to reduce surface water and sewer flooding triggered by rainfall by slowing the flow of water and allowing it to soak away naturally.

What we've done...

Water supply

Updated our **long-term Water Resource Management Plan** and **Drought Plan**

Maintained the **lowest leakage** in the industry

Become **industry leaders** for metering coverage

Changed our service level for emergency drought orders from **1 in 100** years to **1 in 200**

Invested in resilience, reducing the number of customers with a single source of water from **47 per cent** to **25 per cent**

Trialled **smart meters** and **water consumption behaviour change** campaigns in our Newmarket Innovation Shop Window project

Flooding

Published the industry's first **Water Recycling Long Term Plan** in 2018

Assessed flood risk (from all sources) for all our sites and put **permanent defences** and/or **Flood Emergency Response Plans** in place. We also maintain a dedicated **East Coast Flood Plan**

Invested in schemes at **36 sites** between 2015 and 2020 to **improve their resilience** to flooding from multiple sources

Contributed **£7.5 million** through our Partnership Funding programme towards **49 flood protection schemes** that help protect customers and our assets

What we plan to do...

Build **500km of interconnecting pipeline by 2025** to move surplus water from the north to the south of our region

Reduce our leakage by a further **22 per cent by 2025** (versus 2017/18), and **halve it by 2050**

Increase the coverage of customers with a meter towards **95 per cent**, with **all meters to be smart meters**.

Eliminate the risk of severe water restrictions in a 1:200 drought for **all our customers by 2025**

Reduce the proportion of customers supplied by a single source of water to **14 per cent by 2025**

Reduce per capita consumption to **120 litres per day by 2045**

Evolve our **WRLTP** into a **Drainage and Wastewater Management Plan (DWMP)**, the new industry standard for long-term planning

50 per cent Increase in partnership funding to **£12 million between 2020 and 2025**

Reduce internal sewer flooding incidents for customers by **24 per cent between 2020-2025**

Deliver our **Make Rain Happy** programme, aimed at better managing surface water

Reduce serious pollution incidents to **zero by 2025**, with a **25 per cent reduction in non-serious incidents**

Case studies

Future Fenland

Anglian Water has worked for many years to help regenerate the Fenland town of Wisbech in NE Cambridgeshire, in partnership with Fenland District Council and other organisations like Business in the Community. Our joint work has focused on addressing social challenges such as skills and opportunities, much-needed housing, better transport connectivity, and addressing high levels of flood risk in an area where much of the land is below sea level.

The ambitious Future Fenland initiative, a new cross-sector partnership involving Anglian Water, Water Resources East, the Environment Agency, Royal Haskoning DHV and many regional partners, builds on this successful approach and takes it to a new level. It offers the opportunity to manage land and water across the Fens in a new and integrated way to deliver sustainable growth, nature restoration and climate change adaptation.

The Future Fenland strategy combines flood risk management, including upgraded coastal defences, barriers and barrages, with new open water transfers and reservoirs serving multiple sectors. Together these investments will unlock economic growth, new housing projects and improved transport links, as well as benefiting nature and tourism.

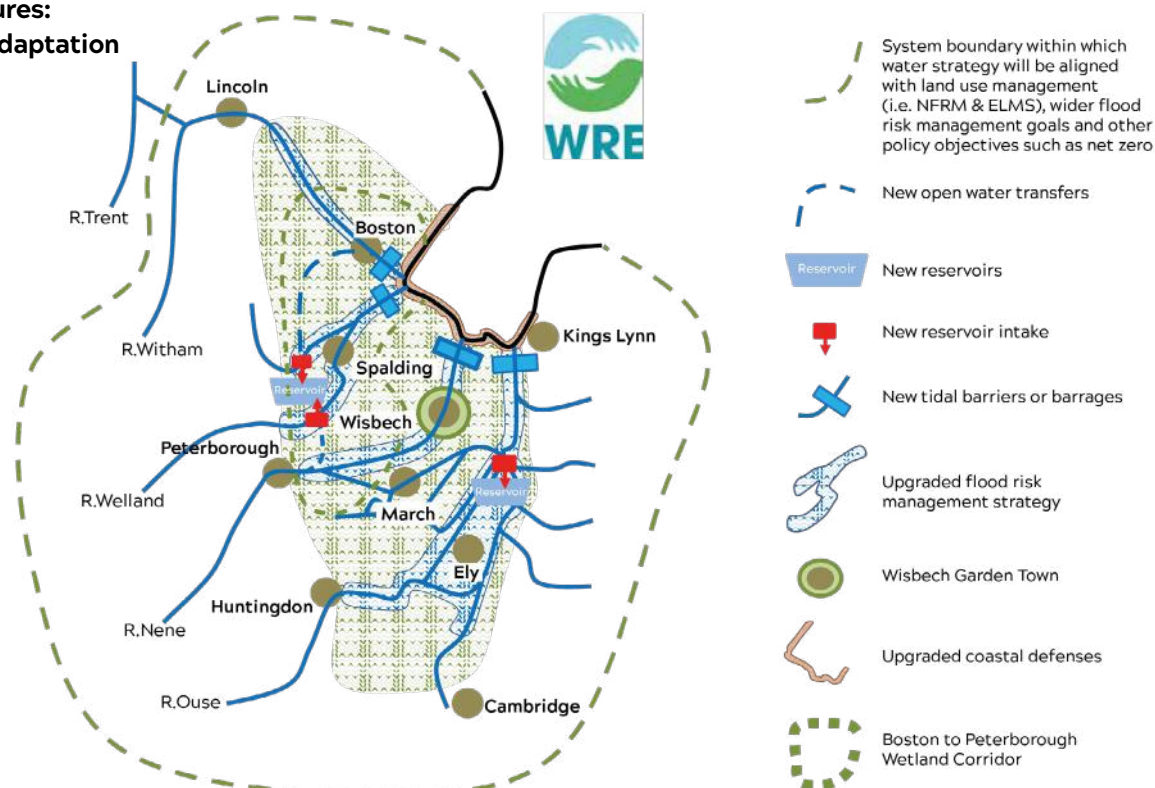
New multi-sector reservoirs could provide additional water supply resilience for public water supplies, farmers and the food industry, and improve the water environment. Downstream flood barriers or barrages would protect growth areas in the Fens, enabling key local infrastructure

projects such as a rail connection from Wisbech to Cambridge and the dualling of the A47 to move forward. Using open channels to move water rather than pipes would benefit nature, tourism and navigation, as well as providing further water storage and flood risk management benefits.

Next steps for the project will see a cross-sector 'Task Force' created, combining public and private sector interests, to develop a detailed scope of works.

Future Fenland is a radical and ambitious approach to tackling the combined challenges of population growth and climate change, delivering not just increased resilience but long-term growth in environmental and social prosperity for the East of England. It is hoped that it will act as a model to inspire others across the UK and beyond, as organisations consider how best to respond to Covid-19 - by investing in low carbon infrastructure that helps prepare for the impacts of climate change.

Fenland Futures: integrated adaptation



Managing surface water in Grimsby

What was the problem?

Grimsby, in North East Lincolnshire, is a heavily urbanised catchment, with an average of 68m² of impermeable area per person, and is predominantly drained by a combined sewer system. Since 2015 we have undertaken work to deliver our first long-term surface water management programme. This work has used Grimsby as an exemplar catchment and a learning experience.

What have we done?

Historically, our approach to managing increased flows in our combined sewers has been to increase flow capacity by building bigger sewers or by introducing attenuation tanks. This has delivered benefits including reduced flood risk, improved water quality and better public health, but continuing to build bigger and bigger pipes or more storage becomes unsustainable with climate change.

Instead we have identified opportunities to manage surface water at source in partnership with the local council. This has included restoring a formerly piped watercourse above ground, retrofitting sustainable drainage solutions to a school and its local neighbourhood, looking for opportunities to disconnect downpipes and plant street trees, and attenuating rural flows that enter the combined system.

How will the catchment approach improve resilience to climate change?

Undertaking this work will help to manage rainfall, reducing both flows and volumes in our sewers during periods of heavy rain.

This, in turn, will have a positive impact on the 41 sewerage pumping stations across the Grimsby catchment, as well as the Pyewipe Water Recycling Centre.

Managing surface water in this way helps us to manage the risks of climate change, growth and urban creep. This benefits our customers by reducing the risk of flooding, improving river and bathing water quality through a reduction in pollution, reducing carbon and energy use through reduced pumping and treatment, and providing improved places to live, work and play.



Grafham Water and energy resilience

What was the problem?

In 2014 we made a business case to improve the resilience of our sites to electricity failures. One of the sites included in the business case was Grafham Water Treatment Works. This site supplies 400,000 properties and also provides a bulk supply to another water company. At the time we were preparing the business case, Ofgem was forecasting a significant narrowing of the UK's electricity capacity margins following the closure of coal-fired power stations. We needed to mitigate this transition risk as well as the physical risks associated with severe weather affecting the local electricity distribution network. The business case to improve energy resilience at Grafham was part of a wider investment strategy to improve the resilience of our water supplies to shocks and stresses, including climate change. This project involved the construction of a new 40-mega-litre storage reservoir, a new pumping station, pipelines and inline package booster stations at 15 sites across Cambridgeshire, Northamptonshire and Bedfordshire.

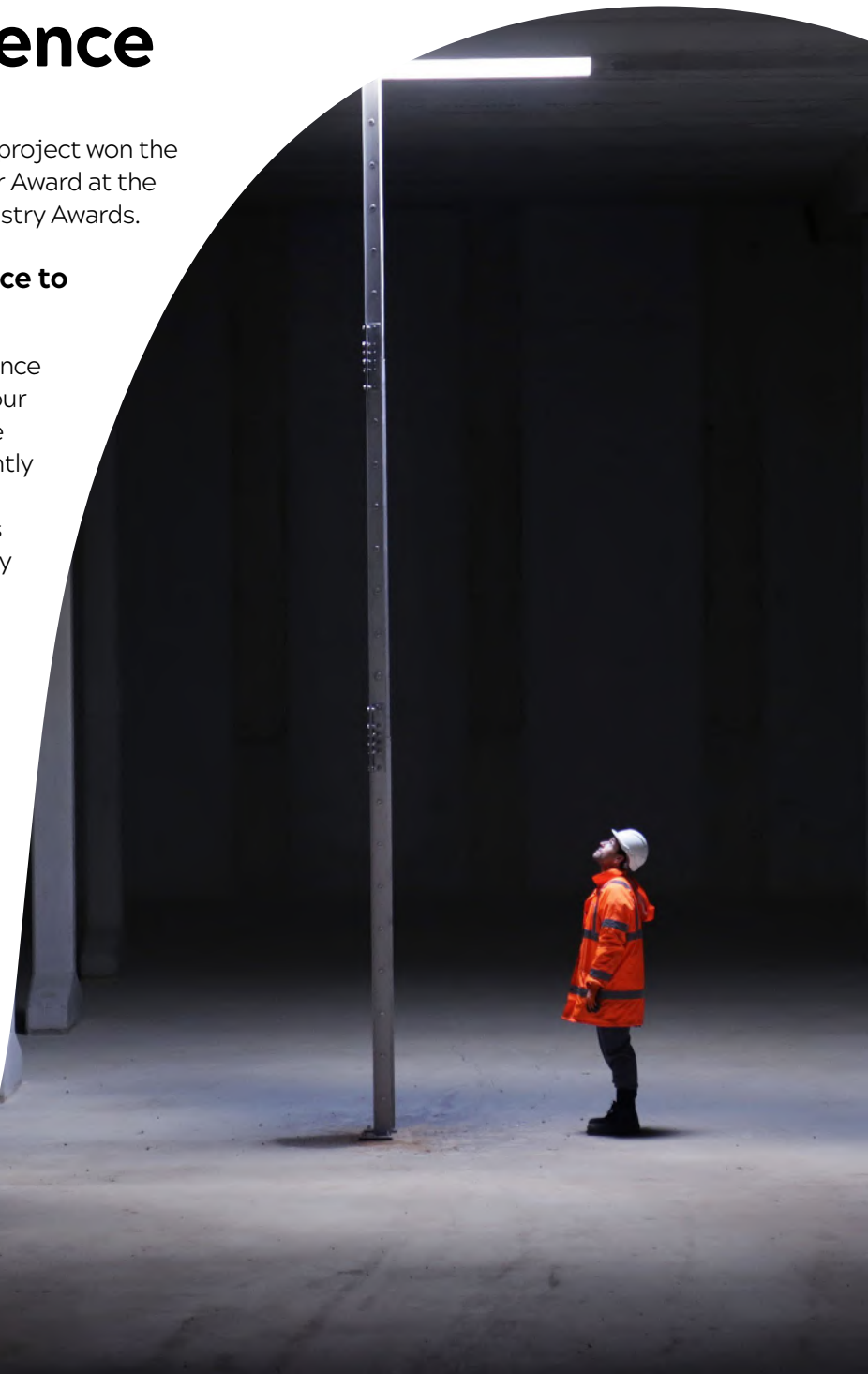
What have we done?

We worked with experts in the energy industry, including National Grid, to quantify the risk and develop a range of options for responding to electricity failures. At Grafham we considered numerous options, including working with UK Power Networks to reinforce its electricity network. We opted to install large back-up generators and to work with our supply chain to ensure a secure supply of fuel in the event of an emergency. The back-up generators were commissioned in 2019. We have now installed solar panels on land we own next to our Grafham site which will meet up to a quarter of the site's energy demands.

In 2017 the Grafham water resilience project won the Carbon Reduction Project of the Year Award at the prestigious British Construction Industry Awards.

How has this improved resilience to climate change?

Both the energy and the water resilience projects at Grafham have improved our resilience to climate-related risk. The actions we have taken have significantly reduced our exposure to the risk of electricity failures and cost increases as the electricity grid transitions away from fossil fuels. The installation of solar panels also reduces this transition risk. On 9 August 2019, after we completed these resilience projects, the UK experienced its biggest blackout in a decade following a lightning strike and the failure of generating plant. At Grafham we now use the back-up generators in a precautionary way. Before a storm, the site can be disconnected from the electricity grid and supplied by the new generators. We also intend to make the generators available to the National Grid and UK Power Networks. This will not only help the UK to manage its supply and demand balance, but it will reduce our costs.



For more information, please
visit www.anglianwater.co.uk

love every drop
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