WONDERFUL ON TAP

SEVERN TRENT

# Caring for our **Environment**

**Severn Trent Plc**

**This is how we care for our environment.** It explains how we are working across our business to play our part in tackling the twin global challenges of climate change and biodiversity loss.

Our customers and stakeholders have told us they want to know more about what we are doing for the environment so we have pulled it all together in one place.

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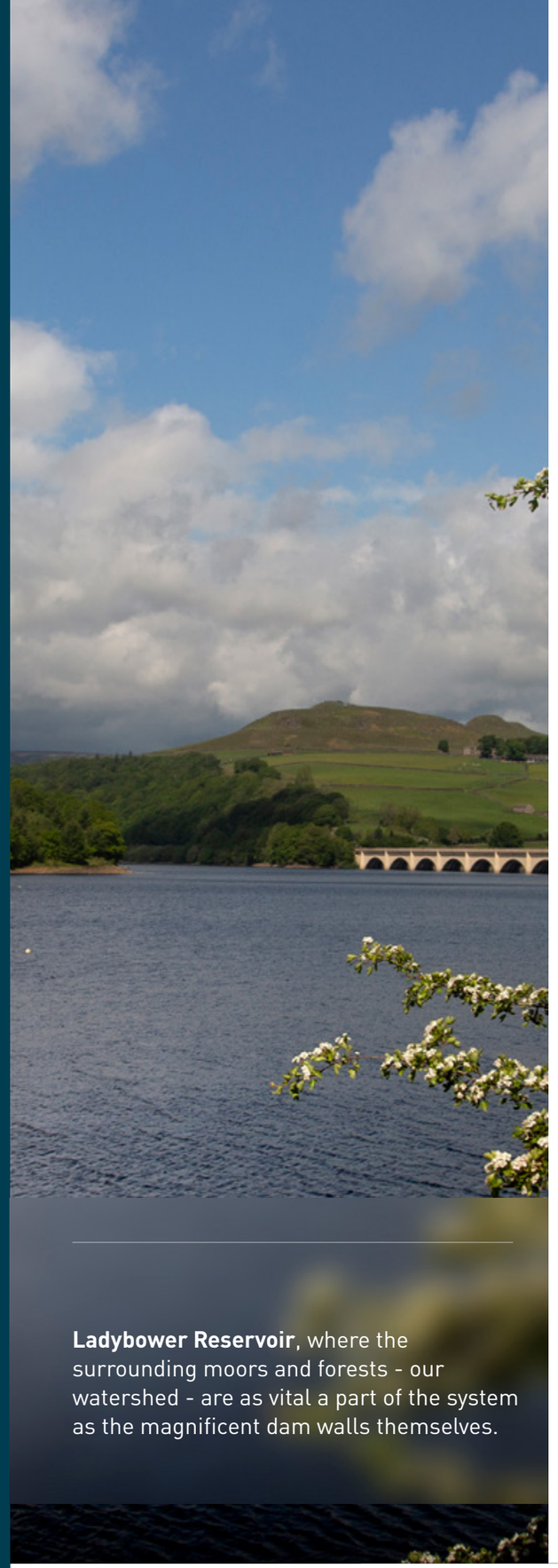


**Ladybower Reservoir**, where the surrounding moors and forests - our watershed - are as vital a part of the system as the magnificent dam walls themselves.

# Contents

# Severn Trent

**Severn Trent operates two of the UK's 11 regulated water and wastewater businesses in England and Wales, Severn Trent Water Limited and Hafren Dyfrdwy Cyfyngedig.**

We supply 2 billion litres of clean drinking water every day to more than 4.6 million households and businesses, and treat 3.1 billion litres of wastewater. In addition to our regulated water businesses, we also operate in other service areas including Green Power (anaerobic digestion of crop and food waste, hydropower, solar and wind power), Operating Services and Property Development. Our region stretches across the heart of the UK, from the Bristol Channel to the Humber, and from North and mid-Wales to the East Midlands.

**6,800 km**
of rivers

**21,000 km$^2$**
company area

**£21 bn**
invested since 1990




# Foreword

**I am very proud to introduce Severn Trent's approach to the environment –** our response to the twin threats of climate change and nature loss, launched in a year when we've learned a lot about global emergencies. Our approach is built off science and knowledge, coupled with practical innovation and delivered through working in partnership with others.

Taking action is not optional and the scale of the task will challenge us all. Our response to these challenges is to set ourselves bold ambitions and embrace them with a creative mindset. We will manage our region's water so we can all continue to use it sustainably into the future, we will play our part in rebuilding habitats that protect water catchments, we will turn waste into resources, and we will make our business net zero operational carbon by 2030, well ahead of the UK's national target.

Our commitment to the environment is not new. Our approach builds on work that we have been engaged in for decades, as one of the country's largest producers of renewable energy from anaerobic digestion, as stewards of land and water, and as efficient operators, seeking every opportunity to reduce waste and recycle resources. By creating a strategy that clearly matches our actions to our ambition, we raise our game and create new opportunities for synergy and innovation.

We know that going further and faster towards our environmental goals is something that is supported by our staff, customers, shareholders and the wider community. This approach will enable all of our stakeholders to see transparently what we aim to achieve, and how we can work together to achieve it. Partnership forms an integral part of our delivery, and we warmly invite further collaboration across our region and beyond - with farmers, NGOs, government, customers and other businesses.

As a purposeful company with public interest at the heart of what we do, taking leadership on the environment is a role we embrace. We take every opportunity to reinforce this with a global community of business leaders, through supporting initiatives such as HRH the Prince of Wales' Terra Carta and the UNFCCC Race to Zero. And we are proud that our efforts are recognised through our listing in FTSE4Good and leading positions in indices such as Sustainalytics and the Responsibility100.

We will collaborate globally; but, most importantly, we'll be doing what we do, right here. We're proud of our work, and we're proud of the part our region can play in generating solutions to global challenges. We won't let the enormity of the task daunt us or get in the way of what it takes to find a way forward. We'll be working to make sure Severn Trent takes care of one of life's essentials, your water, for generations to come and that we do this as sustainably as possible.

Liv Garfield,
**Chief Executive**

# Introduction

**Our environment is who we are.** From our region's wild moors and pretty dales to big, diverse and burgeoning cities, when these places thrive and our communities prosper, so do we.

**For Severn Trent this relationship between the environment and our ability to operate has always been very direct.** We're literally plumbed into our region's landscapes. Our natural environment catches, holds, carries, and helps purify our water. And the climate drives many of our critical functions; from the filling of our reservoirs to the ways in which our customers use water.

Along with our community of responsible citizens, businesses and investors, we recognise that the environment cannot be taken for granted. The twin threats of climate change and biodiversity loss present perhaps the greatest challenges our society will face this century.

> For Severn Trent Water and Hafren Dyfrdwy, the environment is business-critical.

Addressing these challenges will be crucial to securing the ability of our communities, and our regional economy, to thrive on into the future. Likewise, it will underpin our own future ability to serve and flourish as a water company.

That makes it very natural for us to take a lead in thinking ahead, as we are here for the long term to invest in the environment, and to plan and adapt our business accordingly. Our predecessors made far-sighted investments in dams and pipelines to match the need for sanitation and clean water in rapidly growing cities. In the same way we will take strategic action to meet the challenges that we see ahead of us. Increasingly the infrastructure we are investing in, and the objective, includes our natural environment. But the instinct is the same – long-term is in our DNA.



## Integrating environment across our business

**Our work on the environment is not a 'bolt-on' to Severn Trent's normal operations.** It informs and integrates into every part of our business. That has deep and positive implications for the way we deploy resources, for the way we organise ourselves, and for our culture. Adapting ourselves to take substantial action on our environment provides an opportunity to build on our commitment to be a purposeful business, which thinks and acts for the long-term.

Working with large, connected-up systems is our stock-in-trade. So working on the environment in an integrated manner, finding solutions across the business is something we are well-placed to do. And in our experience we've found that solutions to environmental challenges lend themselves well to working on more than one level, and creating multiple benefits. Repairing natural habitats to protect water supplies provides some of our towns and cities with the best protection against the worst effects of climate change; like extremes of temperature, rainfall or drought. And repurposing waste, and create an income stream, that helps to keep bills low for customers.

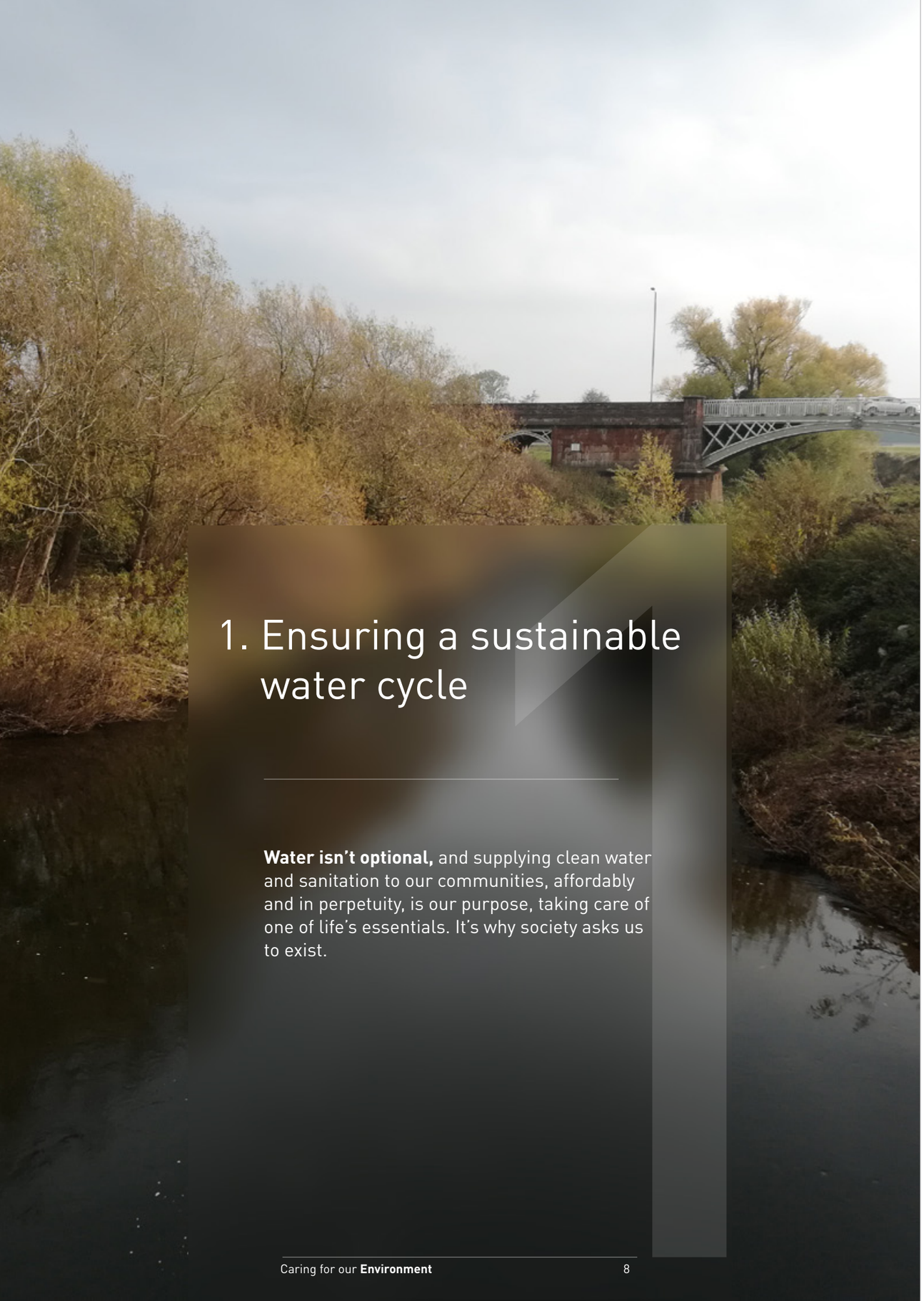
Our approach works on the same integrated principles. It rests on four fundamental pillars, which address the global challenges of climate and nature and meet the imperatives that we have as a business.

## The Four Pillars:

1. Ensuring a sustainable water cycle
2. Enhancing our natural environment
3. Making the most of our resources
4. Mitigating climate change

Driving our work across these pillars are practical ways of working that provide a unified approach. Things like our pioneering use of nature-based solutions; working in partnership; the way we nurture innovation; and thinking and acting in a joined-up way to deliver multiple benefits. Each of these areas is showcased as a 'spotlight' throughout the document.

**Our approach to the environment is to plumb it into the heart of our business.** For years we've been using anaerobic digestion to treat sewage sludge in a way that also generates renewable energy, reduces greenhouse gas emissions, and reduces our costs and reliance on fossil fuels.



# 1. Ensuring a sustainable water cycle

**Water isn't optional,** and supplying clean water and sanitation to our communities, affordably and in perpetuity, is our purpose, taking care of one of life's essentials. It's why society asks us to exist.





**Our core business is based on harnessing natural cycles to abstract the water people need, at the right time, from the right place, and at sustainable levels.**

We balance our abstractions to protect levels of stored water in case we need them in drier periods. We are taking action to reduce the amount we abstract in areas where there is a risk of causing environmental harm. And after the water has been used by households and businesses across our region, we clean it and return it back into our rivers, keeping the cycle going and going.

> What we do with water is elemental work, carried out on an epic scale. The impact of climate change on our operations will be met at the same scale and on the same terms.

We are likely to see hotter, drier summers and wetter, stormier winters with more frequent extreme weather events. This will have impacts across the business, with increases in customer demand for water during hot dry spells, greater risk of deteriorations in water quality, and greater potential for both low flow, as well as flooding and sewer overflows.

We can do this. But it will mean going beyond the basics of prudent management of our existing resources. It means building capacity and resilience in the systems that deliver those resources, so they can provide for future demand, future uncertainty, and future generations of customers.

## Our priorities for ensuring a sustainable water cycle

**Our plans for ensuring the longevity of the water sources in our region are set out in our comprehensive 25-year Water Resources Management Plans (WRMPs) which you can find here and are agreed with our regulators.**

We are committed to ambitious targets to reduce per capita water consumption in our region, already one of the lowest in the UK, through water efficiency programmes.

We are using a combination of hard work and innovation to tackle leakage. We are constantly monitoring abstraction to reduce detrimental impacts on the environment and ensure that we can continue to access water sources in perpetuity. And, in common with other water utilities in the UK, we are working towards 100% treated effluent compliance and reduced rates of sewage discharge into rivers, with a future aspiration of zero pollution incidents.

### Our priorities are:

- Reducing the amount of water that's used
- Removing less water from the environment
- Improving our rivers by preventing pollutions

# 1.1 Reducing the amount of water that's used

**Water is precious.** By minimising consumption, we place ourselves as unobtrusively as possible in the natural water cycle; we conserve limited water resources, we ensure river ecosystems and biodiversity are protected, and we reduce the volume of water we need to pump and treat across our network.

To achieve this we focus hard on two things:

- **Water efficiency**
- **Reducing leaks**

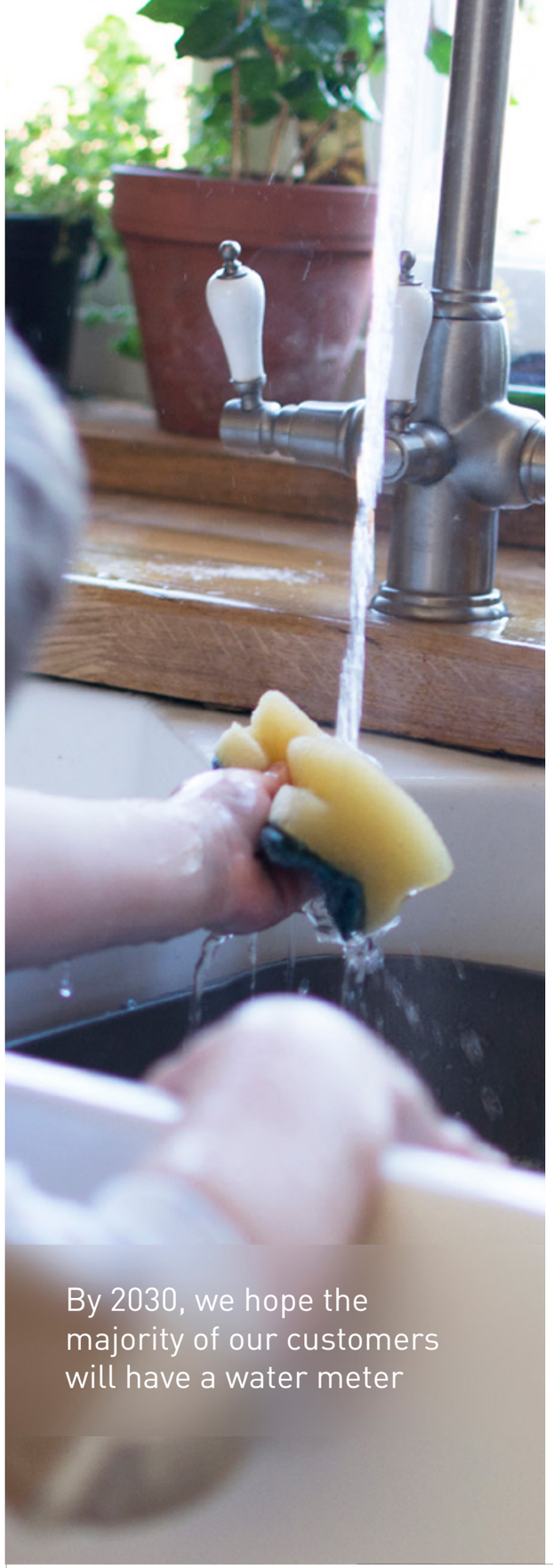
## Water efficiency

**Our ambitious water efficiency programme has already saved around 25 million litres per day between 2015 and 2020 through water efficiency advice for customers,** free and subsidised water-saving products on request, and targeted home water efficiency checks.

We will continue to roll out these successful schemes, aiming to reduce per capita consumption by a further 3.5% by 2025. Our schools programme will reach 500,000 children, educating on the value of water, responsible sewer use and the importance of hydration to health. We will deliver 35,000 home water efficiency visits, install 400,000 water meters, provide water saving devices in partnership with Save Water Save Money, and help businesses to recycle their grey water. By 2030, we hope the majority of our customers will have a water meter, and long-term, our goal is to help show communities and businesses, in particular farmers, how building water resilience makes practical sense for them.

Culture change will mean getting everyone on-board, so at government level we are advocating for legislation that will support mandatory water labelling and minimum standards for building and water fitting regulations.





By 2030, we hope the majority of our customers will have a water meter

Ensuring a sustainable water cycle

## Reducing Leaks

**Water that leaks from pipes and other assets before it reaches our customers is wasted – as is the energy that was used to treat it and move it around our network.** So it benefits our business and the environment to reduce leakage as much as possible. Alongside the rest of the water sector in the UK, we have taken a Public Interest Commitment to triple the rate of sector-wide leakage reduction by 2030.

We have a strong track record in reducing leakage from our network, having delivered our leakage target eight out of the past nine years. We've now committed to an ambitious goal to reduce leakage by 15% by 2025, and by 50% by 2045 for Severn Trent. For HD we have committed to 12.4% by the end of 2025, and will do this by continuing to invest in recruiting, training and managing our water network technician teams to focus on finding and fixing leaks earlier and faster, ideally before they begin to cause a problem. Our 'find and fix' mode of working has benefited from installing 40,000 data loggers in our network, and we are involved in innovation trials to explore use of fibre optic networks to help us identify leaks.

We know that our ambitions to control leaks will require continued innovation, so we have helped to convene the World Water Innovation Fund. This is a group of leading water companies from countries including the USA, Australia, Singapore, Brazil and Spain, who have come together to explore new technologies and best practice, and be part of a global effort to preserve water resources. The scheme now covers 60 million customers and has seven live trials, with many more planned.

# 1.2 Removing less water from the environment

**Healthy rivers need consistent and plentiful flows of water in order to function as a habitat for plants and animals, and to support the well-being of local people.** That means we need to ensure that our abstraction of water – the rate at which we pump water from rivers and aquifers – is at a sustainable level, minimising impacts on water flow or quality.

We have committed to manage our abstraction to ensure it is sustainable, and we will work on this in three important ways:

- **Actively managing existing impacts**
- **Moving abstraction to less vulnerable areas**
- **Balancing water resource needs across catchments**

## Actively managing existing impacts

**One of the ways we do this is by reducing our abstraction in areas where it may be having an adverse impact on our rivers.** We are working with partners on mitigation measures at 11 sites, and have been piloting abstraction management projects in two areas collaborating with Defra.

## Moving abstraction to less vulnerable areas

**We have committed to creating 68Ml/d of new supply capacity to ensure security of supplies while reducing abstraction from unsustainable sources by up to 39Ml/d by 2030.** We will not increase abstraction where we assess it would cause a deterioration of the water bodies' Water Framework Directive status. Where impacts are identified, we will work with our regulators and other stakeholders to develop sustainable solutions, which could include measures at the same location, or using alternative sources of water to replace any unsustainable abstraction.

## Balancing water resource needs across catchments

**Water doesn't follow neat boundaries, so as an industry we increasingly need to move water between areas where it is most plentiful to where it is most needed.**

We are already actively involved in regional and national planning to investigate ways of balancing water demand across catchments and between companies. In particular, the South East of England is not only drier than the North West, but its demand for water is higher due to its large population. By the mid-2030s, the South East could be short of around 1,300 million litres per day – the equivalent of 6 million people's average consumption. So Severn Trent is working with partners to investigate ways of transferring water from the North West to the South East via interconnectors – a series of pipes, rivers and canals that can move water across the country when it's needed.





# Adapting to climate change

**Of course, the first part of our response to climate change is taking responsibility for reducing our greenhouse gas emissions.** But the climate is already changing, and will continue to do so over the coming decades.

To plan for this we use the latest climate models to inform our long-term strategic asset and operational plans. Our 2019 Water Resources Management Plan, assessed a wide range of impacts and climate scenarios and will be updated periodically in line with statutory timetables. We have carefully mapped this against our investment decision-making, and have produced a plan that takes a proportionate approach to mitigating for this future uncertainty.

The practical implications of this 'resilience planning' cascade across the business. It means, for example, constantly dialling up our efforts on sustainable abstraction, leakage reduction and demand management. It also means challenging and updating design standards, technological innovation and an even greater focus on nature-based solutions in our catchments, with landscape initiatives slowing the flow of floodwater and reducing the need for expensive hard engineered downstream solutions. In the 'new normal' our operations will need to be able to handle extreme weather events as business as usual.

## 1.3 Improving our rivers by preventing pollutions

**After abstracting water to be used by households and businesses, we complete the water cycle by returning clean, treated water to the environment.** We measure the quality of the treated water effluent through treatment works compliance, which is assessed by the Environment Agency and Natural Resources Wales, and aim for 100% compliance. However, in common with other UK water companies we face a key challenge to protecting our region's watercourses, in the form of unintentional releases of polluting matter like silt or sewage from our network, known as 'pollutions'. Pollutions can occur for a number of reasons, such as a failure in our sewer network or at our treatment works, or as a result of a burst water main.

Most of the pollutions linked to our assets are the result of sewage escaping before it is properly treated. This is typically caused by asset failure, sewers being overwhelmed during heavy rainfall, or customers putting the wrong things down the toilet or sink, which blocks up the sewers.

**Pollution incidents are a systemic issue, and need tackling from all sides.** We are focused heavily on understanding the root causes, maintaining our assets, training our people, and trialling innovation so that we can identify and assess the risk of an incident and respond proactively. This is an on-going process - for example, we are exploring, along with the wider sector, how increased monitoring and enhanced systems could facilitate more reporting on the operation of overflows. We also continue to work to educate customers to prevent anything that might cause blockages from entering into our systems.

As well as building the ability to respond fast to pollution when it happens, we work across the landscape to slow the flow of water during heavy rains, making overflow much less likely to be triggered in the first place. We are doing this through engineering works such as increased sewer and storage capacity. But we are also decreasing run off rates through tree planting and habitat restoration work across the catchment, and working in urban areas, in partnership with local councils, to install blue-green soft infrastructure like rain gardens, drainage ponds and permeable paving.

We have consistently managed to limit pollutions from our operations to less than the targets set for us by Ofwat - and less than the average of companies in our sector - and we have reduced total pollutions by over 50% and serious pollutions by over 90% since 2011. We are also one of only a handful of companies to regularly achieve the industry's highest accolade of four-star Environmental Performance Assessment (EPA) status from the Environment Agency (EA).





Despite a strong track record, we want to do more to mitigate the impact we have on the natural environment. We're therefore aiming to halve the number of pollutions over the next five years, and work longer term to reduce them to zero.

We know that improving the environment is strongly supported by our customers. Wastewater discharges represent up to one third of the national contribution to rivers not achieving good ecological status. We are making good progress in tackling these reasons for failure, having completed a large programme of work (underpinned by meeting the objectives of the water framework directive) in AMP6 and with an even larger programme planned in AMP7.

Overall we're aiming to improve the quality of over 2,100 Km of river. This builds on a legacy of work and significant investment we've made over the last decade, removing phosphate from our waste water sites. This will ensure that over 50% of our rivers are protected and improved in terms of nutrient levels.

## Storm Overflows Explained

**Storm overflows, or Combined Sewer Overflows (CSOs)**, are an important part of the sewer system and act as safety valves to prevent properties from flooding. During periods of intense or prolonged rainfall, storm water can overwhelm sewers. The overflows allow the excess water to spill into a watercourse which prevents it backing up and flooding homes and businesses, roads or other open spaces.

If we were designing a sewer network today, we wouldn't create a combined system, we'd separate the sewer and surface water systems. Our aim is to reduce the use of overflows, but with over 90,000km of sewer pipes, we can't replace the system overnight, but there's still lots we can do including:

- Using nature based solutions to keep storm water out of our sewers, including the creation of urban wetlands and new, green basins that will allow water to drain away naturally.
- We run the biggest sewer blockages prevention and detection programme – relieving pressure on the sewers, installing thousands of sewer sensors which can alert us to issues.
- And we'll continue to invest hundreds of millions of pounds to upgrade the sewer system - we recently completed a four-year £60m improvement scheme in Newark, protecting many homes from sewer flooding and reducing operation of overflows.

# Spotlight: Our Green Recovery package

**Our Green Recovery package is all about scale implementation of sustainable interventions to deliver a broad range of benefits.** For example, we will show what it takes to get rivers to bathing standard and build understanding of how this type of enhancement could act as a catalyst for achieving the river quality improvements in the 25 year Environment Plan. We'll trial the creation of two bathing rivers (the River Leam and the River Teme), including reducing harm from storm overflows by reducing spills.

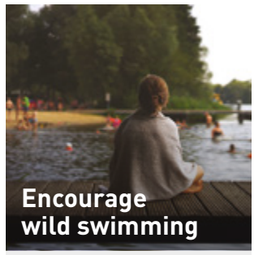
We will also create a catchment scale, innovative, collaborative test bed for tackling 2050 flooding pressure through delivering up to 58,000m3 of blue green infrastructure across Mansfield. We anticipate using up to c15,000 interventions such as rain gardens, planters, permeable paving, detention basis, bioswales, delivered through a partnership approach which includes a securing at least 11% of third party funding.

These are just two of the six exciting new programmes which we will deliver during AMP7.

- **£565m new investment to boost the economy and creating c2500 jobs.**
- **Delivering even greater benefits for customers.**
- **Tackling long term problems and sharing the learning.**
- **Continuing to build long-term trust in the water sector.**

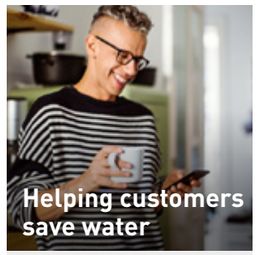
**Flood resilient communities**

**Increased flood resilience to 90,000 people**



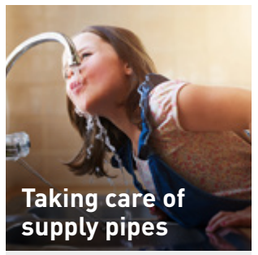
**Encourage wild swimming**

**c5km of bathing rivers (with improvements across 49km)**



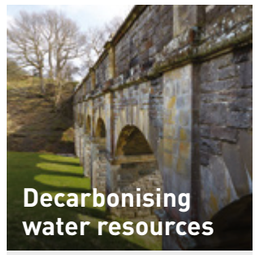
**Helping customers save water**

**157,000 smart meters**



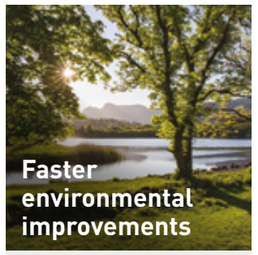
**Taking care of supply pipes**

**Up to 26,000 homes protected from lead**



**Decarbonising water resources**

**69 Ml/d net zero water**



**Faster environmental improvements**

**Over 500km of rivers improved to meet WFD**





# Spotlight: nature-based solutions

**Nature-based solutions involve using the creation of new or restored habitats to address practical environmental problems, like flooding, or pollution, or the need to manage greenhouse gases.** There has been is an upsurge in interest in nature-based solutions, because they offer the potential to integrate nature recovery with the delivery of 'ecosystem services' or 'public goods', which might be paid for by Government or private businesses.

**Of course, as a water company, we've been working with nature-based solutions by default for generations** - the landscapes in our catchments are an invisible infrastructure absorbing, capturing, and filtering our water, especially around reservoirs. But in recent years we have been pioneering their use in an increasing number of ways, as a cost-effective alternative to 'concrete' engineering systems, and one which generates both a range of other public and private benefits, and greater opportunities to work with partners.

As we evolve our long-term asset strategy, we expect that longer term nature-based solutions and catchment management will feature prominently both in the rural and urban environment, with an expansion of nature-based water treatment using created wetlands, investment in sustainable urban drainage systems, and a major programme of tree planting - all working with nature to reduce runoff and flooding, filter water, capture carbon, enhance biodiversity and provide public benefit.

**Catchment Nutrient Balancing –** Phosphate in water is one the biggest nutrient issues we deal with, creating water quality problems that are expensive to treat, requiring high input of chemicals and energy. By working with farmers to install phosphate reducing catchment interventions like buffer strips, hedgerows, and wetlands, and by encouraging regenerative agriculture approaches, we can reduce our reliance on using and upgrading traditional treatment technologies at our wastewater treatment works.

**Sustainable Urban Drainage Systems (SUDS) will help modulate flows of water resulting from rainstorms**. This helps reduce the risk of sewage systems being overwhelmed, and can help address localised flash flooding. They can also create green oases, or 'pocket parks'; improving the urban environment both for people and wildlife.

# Ensuring a sustainable water cycle: our 'to do list'

- Protect ecosystems by removing or reducing unsustainable abstraction
- Create new supply capacity to create future resilience
- Educate 500,000 children to lay the foundations for future demand management, aiming to get from 135l/h/d to 118 l/h/d by 2045
- Harness open innovation to reduce leakage across the network 50% by 2045
- Continue to target 100% treatment works compliance and work towards our long-term goal of zero pollutions
- Expand our catchment programmes to work with 9,000 farmers (63% of all farmers in our region) and discover and roll out innovative practices to reduce agricultural runoff
- Help our rivers to reach ecologically good status and for our region to become recognised as a leading area for river swimming



# 2. Enhancing our natural environment

**From the wild moors and limestone dales of the Peak District to the river valleys of the Severn and the lowlands of the Trent,** our region is blessed with rich, diverse and beautiful landscapes and habitats.

# Our priorities for enhancing the natural environment

**This is important, because in the next decades, the health of our environment will be reflected in the health of our business.** When they thrive together, they will set our region apart.

The actions we take now to protect nature are more important than ever. Globally, we are facing a 'sixth mass extinction', with more than 1 million species at risk. The UK, too, has failed to reach 17 of the 20 biodiversity targets set by the UN in 2010, and 25% of mammals and 50% of birds are in danger of extinction. Climate change is only exacerbating this predicament. As managers of land and water, we believe we have a part to play alongside our statutory duties, to work with our partners and plot a course to nature recovery.

## When we look after nature, we look after water.

Investing in expanding and improving the natural environment is more than just the right thing to do, it is also a practical business imperative. Our environment is the vital partner to our reservoirs, treatment works, and pipelines; capturing, holding, cleaning, and carrying our water. Without nature, we could not do our job, and a flourishing environment plays an important role in helping us deliver our core activities more effectively and efficiently.

## Our priorities are:

- Nature recovery on our own land
- Boosting nature beyond our boundaries
- Making nature integral to catchment management

**Our natural environment and biodiversity strategy is holistic, because nature doesn't operate within boundaries.** We start with our own rural estate, following an evidence-based plan to protect and improve ecologically valuable habitats and species, including at our visitor sites.

Beyond our own land, we work with an extensive set of partners organisations to improve biodiversity across a range of natural habitats in our catchment; we offer biodiversity grants to a wide range of community organisations like schools and community groups; and we work with thousands of farmers across 432,000 hectares to improve their land for nature and reduce agricultural effluent to help protect raw water quality which means we have to treat it less.

To do all this requires an approach that sees the landscape as a whole, understands and respects the multiple life support functions delivered by ecosystems, and delivers joined-up interventions to support natural cycles and connectivity. We have expanded our in-house ecology team over recent years to support this aspiration.

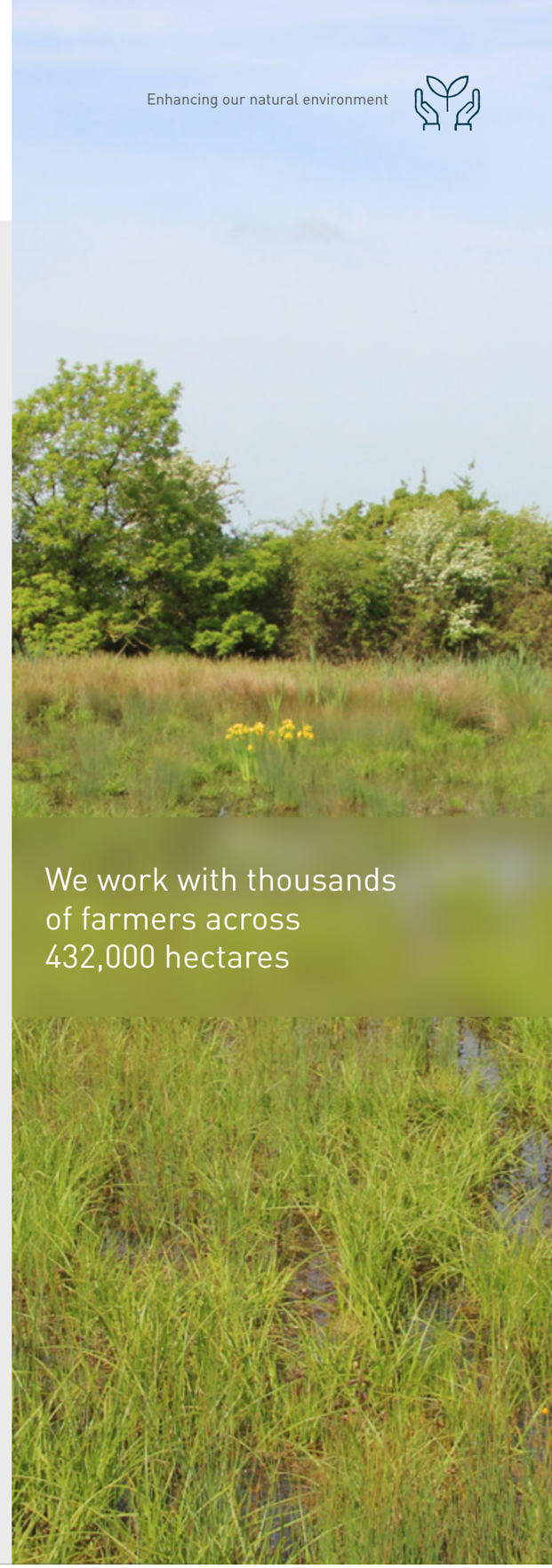
Underpinning our efforts, we need useful ways to quantify the health of natural ecosystems now and the progress we make over time, so that we make sure that on our watch nature is constantly improving. Biodiversity Net Gain tools provide one part of this picture, and as a business we are committed to Biodiversity Net Gain, so we will always leave nature better than we found it. On capital projects that require a preliminary ecological appraisal we are challenging ourselves to deliver 15% net gain.

As biodiversity increasingly rises up the international agenda we will incorporate the latest thinking on how to report corporate performance on nature, including developing our natural capital accounts and closely following the progress of initiatives like the Taskforce on Nature-related Financial Disclosures (TNFD).



Enhancing our natural environment

**As well as familiar wildlife, the Midlands is home to a number of protected species such as great crested newts, water vole, otter, white claw crayfish and bittern.** The open spaces, including wetlands, are also important to migratory birds, large numbers of which pass through the region in spring and autumn. Each species is dependent on others for its survival. The web of biodiversity itself is an integral and significant part of the Earth's life support system.



We work with thousands of farmers across 432,000 hectares

# 2.1 Nature recovery on our own land

**Our estate - half in Wales and half in England - covers a wide range of habitat types, from urban areas to woodland and grassland, tenanted farmland and forestry.** Protecting and enhancing biodiversity across all of the land that we own is a natural place for us to start, and is at the core of our contribution to nature recovery.

We focus our efforts in three key ways:

- **Understanding and monitoring what we have**
- **Looking after designated sites**
- **Integrating our diversity aims across all our land management activities, through nature-friendly forestry and farming**

## Understanding and monitoring what we have

**A detailed knowledge of our biodiversity resource, including the extent and condition of habitats and the distribution and size of species populations,** is essential if action for biodiversity is to be planned effectively and for progress on sustainability ambitions to be achieved.

We have commissioned local Wildlife and Rivers Trusts to undertake biodiversity audits on over 60 of our sites, which we are using to develop and deliver site-specific biodiversity action plans. In addition, our interactive biodiversity strategy map collates numerous layers including habitat type, B-Lines (wildflower-rich pollinator connectivity corridors), and protected sites to allow us to make sensible recommendations for biodiversity improvements and connectivity.

## Looking after designated sites

**Our land includes Sites of Special Scientific Interest (SSSIs),** and we are committed to protecting and enhancing our SSSIs as well as avoiding damage to other SSSIs in our region as a result of our operations. Through the development of a long-term sensitive sites strategy that links to our ambitions in ensuring a sustainable water cycle and our long-term asset strategy, we aim to be a national leader in this area. We are developing robust plans to protect priority species and limit the impact of invasive species.

Alongside this we are enhancing our measures to protect ancient woodland. No planned work on new infrastructure will lead to damage to ancient woodland, and where we are forced to undertake works to repair existing assets in ways that may pose a risk to ancient woodland, we will consult with partner NGOs on the best approach to the challenge.

We hold FSC certification (through our contract partner's group scheme) for our active commercial forestry operations and we will do so for any site that is used for commercial forestry.





## Nature-friendly forestry and farming

**Of course, we know that thriving natural systems aren't, and can't be, confined to nature reserves and designated sites.** And indeed, we know that securing the long-term productivity of land, and its ability to deliver the wide range of outcomes we need as a water company, requires that habitats and natural processes are integrated into all aspects of land management.

That's why our forest management plan for our 2,000ha of commercial forestry at Lake Vyrnwy will be UK Woodland Assurance Standard (UKWAS) certified, and will integrate timber production with the delivery of benefits for biodiversity, water quality and recreation. And it's why, through our relationships with farmers on over 200 agricultural leases, lets, and tenancies on our land, we will help make nature-based solutions and regenerative farming practices an opportunity to build resilient farm businesses, as well as an opportunity for nature recovery.

**The Lake Vyrnwy estate in Wales is one of our largest sites, with over 10,000 hectares of open moorland, blanket bog, farmland and forest, receiving 200,000 visitors every year.** The land surrounds a 7.6km long reservoir, built in the Victorian era to provide the growing city of Liverpool with water. Today, it brings together a partnership of ourselves, United Utilities - who deliver the water to Liverpool - the RSPB, Natural Resources Wales, and the local community. Our vision is for Lake Vyrnwy to be an exemplar of sustainable water and land management for the benefit of the environment, the local economy, the community and visitors.

# 2.2 Boosting nature beyond our boundaries

**Our own land is only part of the picture, and working with nature means working with partners at a whole landscape scale, irrespective of ownership.**

We cannot do this without our partners, and we are proud to work with some of the leading conservation organisations nationally and in our region, for example our work with the RSPB to preserve and enhance ancient woodland in Sherwood Forest, and coordinating with the Wildlife Trusts on the development of Nature Recovery Networks. We also know that action for nature needs to happen at multiple scales, and we think there should be opportunities for the full range of organisations and individuals to get involved. So our Boost for Biodiversity grant scheme specifically targets smaller projects, enabling local authorities, councils, schools, NGOs, local conservation groups and community groups to carry out their own projects to enhance the natural environment.

## The Great Big Nature Boost

**Between 2015 and 2020 we improved the diversity of 244 hectares of land, but we saw such good results with our work that we set a bold new ambition** – and have embarked on one of the biggest nature projects in the UK. We are now aiming to improve biodiversity across 5,000 hectares of land in the Severn Trent region by 2027, significantly exceeding our regulatory commitments. Our Great Big Nature Boost will see us working to improve an area that's bigger than Gloucester.

Through the Great Big Nature Boost, we will plant 1.3 million trees, sourced and grown from UK nurseries. The trees we plant will provide homes for our incredible native wildlife, contribute to natural flood management and sequester carbon. We will establish wildflower meadows, encouraging beneficial insects and birds, which are natural predators of pests that would otherwise damage farmers' crops. This helps farmers to use less pesticide and fungicide, reducing the risk of chemicals running into lakes and rivers. Restoring moorland in our region is valuable in many ways. Healthy moorland is vitally important, providing dense and diverse vegetation and provides much needed habitat for birds such as curlew and skylark. Along with tree planting in gullies and on valley sides, healthy moorland helps make soil less prone to erosion and reduces the impact of flooding. Recovering bog and peatland and creating healthy peatbogs, traps and stores millions of tonnes of carbon and will hold vast quantities of the water, acting like huge sponges. Without this investment, the degraded peatland releases carbon back into the atmosphere and allows sediment to be washed away into watercourses. With restoration we can re-wet and reset the system.



Enhancing our natural environment


Between 2015 and 2020
we improved the biodiversity
of 244 hectares of land

In 2020/21 we improved
2,632 hectares for biodiversity

# Spotlight: partnerships

**We know that no single organisation, or government,** will be able to carry the solutions to solving the issues of climate change and the loss of natural habitats alone. We've always sought out others to complement and support our aims and ambitions.

That's why, across all the pillars of our environment strategy, we actively seek out and develop partnerships. We have an exceptional way of working with partner organisations and a solid track record of working in collaboration.

Whether it's finding partner's who can complement our skill sets to drive out innovation and better ways of working, to pooling resources to bring technological advances to push boundaries; Or, continuing to build on our legacy of working with some of the most well loved and recognised organisations in the UK.

In building this skill, we can transform our collective impact, by working together we can achieve the scale required to deliver outcomes that are in everyone's interest.

**Boost for Biodiversity:**
**On a Tree by a River project.**
The Tame Valley Wetlands, the RSBP and West Midlands Bird Club has teamed up to secure £10,431 from the Severn Trent Boost for Biodiversity scheme for the 'On a Tree by a River' project. The work aims to increase the population and local range of Willow Tits in the Tame Valley, by creating new habitats and raising community awareness of the species.

> "Severn Trent's support has been fundamental to us bringing Willow Tits, one of the most threatened native bird species in the UK, back from the brink of extinction."

Ian Wykes, **development manager at Tame Valley Wetland.**





**Moors for the Future Partnership**.
Started in 2003, the Moors for the Future Partnership works to protect one of the most degraded landscapes in Europe. Using innovative conservation techniques, it has transformed over 34 square kilometres of bare and degraded peat bogs in the Peak District National Park and South Pennines. From 2020 to 2025, we will continue to work on over 600 hectares in the Upper Derwent Valley of the Peak District, where we will be improving moorland and restoring peat bogs. We will increase biodiversity through sphagnum moss planting and blocking the grips (which were dug many years ago to drain the bogs) and gullies (caused by natural erosion).

The partnership is supported by the Peak District National Park Authority, Environment Agency, National Trust, Pennine Prospects, RSPB, Severn Trent, United Utilities, Yorkshire Water, and receives advice from Natural England, National Farmers Union, Heather Trust, Woodland Trust, Triodos Bank and the British Mountaineering Council.

MOORS FOR THE FUTURE PARTNERSHIP

Image courtesy of Nottinghamshire Wildlife Trust.

Across our region, The Wildlife Trusts play a significant role in not only working with us to help deliver our biodiversity ambition, but they are also a vital partner in helping us connect to our rural communities.

Our Great Big Nature Boost is not only supporting the reintroduction of beavers to Nottinghamshire and Derbyshire, but also working with many of the Trust's across the region enhancing and creating habitats.

In Nottinghamshire, we're working together across landscape scale areas. In addition to the work at the Idle Valley Nature Reserve they are also supporting efforts to bring back wading birds and water voles in the wider Idle Washlands and work to improve water quality, soil health and increase farmland pollinators in Sherwood Forest. Together through our Farming for Water Programme, we have a long established programme of catchment work delivered for us by the Trust's advisor, where our trial with farmers to under-sow maize has been a great example of innovation and partnership to help protect water quality.





**"Serious investment in nature's recovery is good for wildlife, good for communities and good for business.** Working in partnership we have the power to address the climate and ecological emergencies through local action and our collaboration with Severn Trent Water embodies the kind of proactive approach needed to achieve national ambitions to create a flourishing Nature Recovery Network created from the ground up, with everyone playing a part.

Together we are making vital progress by improving habitats and supporting threatened species – demonstrating the benefits of industry, farming and conservation working together and we hope that the bold approach taken by Severn Trent Water will encourage and inspire even more local action to deliver real change across the UK."

Paul Wilkinson, **Nottinghamshire Wildlife Trust Chief Executive**

## 2.3 Making nature integral to catchment management

**How agricultural land in our catchments is managed is one of the key determinants of our region's biodiversity and ecosystem health, not only on land but also underwater.** While sewer overflows and pressure from built-up areas also have an impact on water quality, discharges from agriculture and land management are the single most significant cause of failure to meet the government's targets for good ecological status in rivers. It is also in our interests as a water company to improve this. We estimate that for every £1 we spend to reduce runoff of phosphates, nitrates and other agricultural chemicals through our catchment management programmes, we avoid £2 - £20 of treatment costs and generate £4 of wider environmental benefits.

That is why our catchment management programme Farming for Water works directly with farmers to deliver a suite of integrated solutions that boost on-farm biodiversity at the same time as reducing agricultural inputs to improve water quality.

### STEPS

**The Severn Trent Environmental Protection Scheme** - offers grant funding for farm improvements such as pesticide handling areas, watercourse fencing, cover crops, biodiversity and woodland management options. Over five years the scheme has distributed over 1,500 grants worth over £5 million for water quality improvements, negating the need for £74 million of investment in our treatment processes.

### On-farm advice

**Our SOFA (Specialist On-Farm Advice) programme, offers 11 bespoke, specialist farm advice visits,** complemented by a further five soil and manure sampling suites to aid farmers in their soil, nutrient, water and pesticide management. Specialist contractors deliver the visits alongside the farm's local agricultural advisor, before providing a comprehensive report and recommendations with links to our funding opportunities and those through our partners. Over the last decade, our 21 farm advisers have engaged with 98% of the farmers in our priority catchments and built strong relationships with them: 98% of farmers who have worked with us say that it was a positive experience.






### Payment for Ecosystem Services

**Our Farm to Tap scheme, launched in 2016, pays farmers to keep pesticides out of watercourses.** This contributes to improvements in drinking water quality and helps us reduce energy, chemicals and further costs in our water treatment process. In 2019/20, Farm to Tap helped to ensure we had no pesticide drinking water quality failures at any of our treatment works.

Looking ahead, the country as a whole faces a significant challenge to meet the Government's 25 Year Environment Plan target of 75% good ecological status in UK rivers as soon as possible - the current figure is just 14%. We plan to be part of this effort by helping farmers to keep nutrients where they are needed - in productive soils rather than washing out into watercourses. Together with our partners in the farming community we have already made great progress, delivering water quality improvements for around 1,600 km of river between 2015 and 2020, and in some of our catchments we estimate we can reduce farming's contribution to phosphates in watercourses by up to 66%.

But now we are investing to expand Farming for Water further. Through extensive risk mapping, catchment walkovers and data analysis, we have identified areas where water quality is especially sensitive to how the land and crops are managed, allowing us to prioritise our actions. In total our ambitious future plans cover 44 catchments and 432,000 hectares. By the end of 2025 this will see us working with over two thirds of all the farmers in our region.

## Enhancing our natural environment: our to do list

- Protect and enhance our ecologically important sites
- Limit invasive species and safeguard priority species
- Understand our estate in order to make strategic interventions with multiple benefits
- Contribute to climate mitigation, catchment management and biodiversity by planting 1.3m trees
- Improve the biodiversity of 5,000 hectares of land
- Cultivate long-term strategic partnerships to restore natural ecosystems
- Develop our natural capital accounting framework to better quantify and account for the natural capital we are preserving and enhancing
- Expand our catchment programmes to work with 9,000 farmers (63% of all farmers in our region) and discover and roll out innovative practices to reduce agricultural runoff

# 3. Making the most of our resources

**We operate in a material world.** And as you'd expect, in taking care of water - one of life's essentials - we're careful to make plans and build systems that add up. So you can count on us to be fastidious and measured in our use of resources. Our aim is to engineer for efficiency, design out wastage, and champion the skills and learning needed to get this right.





## Our priorities for making the most of our resources

**As much as our business is rooted in the natural environment, we also depend on extensive, connected, and carefully calibrated systems of engineered infrastructure, plant, and machinery.** Thinking in systems is part of our worldview - so it's only natural for us to engineer for efficiency, to design out wastage, and to find smart ways of making the most of the materials under our stewardship.

> Thinking about waste as just a resource in the wrong place opens up a world of opportunity.

By adopting a circular economy approach in all areas of our business, we are able to use less of the world's finite material resources and reduce the impact of their extraction on nature and biodiversity; generate cost savings; reduce waste; and lower our greenhouse gas emissions.

Our material footprint as a company combines three key activities. First, like many other businesses, our facilities management, fleet, office and IT needs. Second, our construction and civil engineering work - digging, building, repairing, shifting large amounts of earth, and deploying construction materials at volume to keep our water and sewage networks running. And thirdly, we are a waste processor at heart - we take sewage and food waste from homes and businesses, and convert them to biosolids with beneficial nutrients for farmers.

**For many years we have been a leader in converting sewage to energy and fertiliser using anaerobic digestion, and we are now applying this expertise to food waste too.** We know that emerging technologies will allow us to extract even more value from waste, and this will continue to be a core focus for our innovation and investment. In the rest of our business, our comprehensive waste audit data provides the starting point for pinpointing areas of focus for our zero landfill aspiration, and we now need to maintain our efforts to meet the government's ambition of zero avoidable waste by 2050.

But we know that landfill diversion is only part of the picture. As much as we can, we need to use less and utilise our existing resources better. Understanding in more depth the relative impacts of different waste categories will allow us to prioritise our actions as we look to reduce overall waste generation in addition to optimising end of life. We will increasingly look upstream to our supply chain to identify opportunities to reduce material use and source more sustainably.

### Our priorities are:

- Turning waste into resources and energy
- Making our material use 'circular'

# Embedding circular economy principles

**Our overall ambition is to embed and apply circular economy principles across the business:**

- Through our design and procurement processes, we will identify opportunities to use less
- What materials we do need, we will source responsibly, minimising environmental footprint
- We will recover resources and energy from waste water
- We will make maximum use of all of our assets, repairing and extending life where possible
- At end of life, where others see waste, we see opportunity, to recover, regenerate and create value





## 3.1 Turning waste into resources and energy

**As a water company, one of our biggest waste streams is sewage from homes and businesses.** The sludge produced as part of our wastewater treatment process makes up 55% of our total audited dry waste. Our two biggest opportunities for valorising' sewage are:

- **Using waste to generate energy**
- **Extracting valuable products from waste**

### Using waste to generate energy

**We realised 50 years ago that sewage sludge was in fact a valuable product that we could use to generate renewable energy.** Today we are the UK leader in the production of biogas from sludge through anaerobic digestion. In addition, our UK award-winning food waste and green waste recycling business Severn Trent Green Power processes a quarter of the UK's food waste using AD and composting, and together our bioresources and food waste plants make us the biggest AD operator in the UK.

We exported 245 GWh of green gas and generated 319 GWh of electricity from 35 Anaerobic Digestion ('AD') sites this financial year, enough to power around 90,000 households with electricity and 18,000 with gas for a year.This generation replaces fossil fuels that otherwise would have been required, and avoids 19,000 tonnes of carbon dioxide equivalent (CO2e).Across Severn Trent group we generate renewable electricity and gas equivalent to 53% of Severn Trent Water's electricity use.

We will continue to invest in expanding and improving our AD operations, including upgrading from conventional digestion to a Thermal Hydrolysis Process (THP). This uses heat and pressure to break down the sludge before digestion, resulting in a more efficient process, an enhanced product and higher gas yields.




### Extracting valuable products from waste

**Sewage sludge contains far more potential than just the energy that can be generated.** Our AD operations produce around 145,000 dry tonnes of treated biosolids which we send to agricultural land as fertiliser, reducing the need for production of conventional fertiliser, a significant source of greenhouse gas emissions.

Our food waste plants, too, produce a digestate rich in nitrogen, potassium, phosphate and other trace elements that is highly valued within the agricultural community. Our composting facilities produce a soil improver that is PAS 100 and Compost Quality Protocol certified.

In addition, we are creating opportunities to recover other resources from sludge, such as nitrogen, ammonia, phosphorus, nutrients and cellulose. We already have a full scale plant that recovers nitrogen and phosphorus in the form of struvite at Nottingham wastewater treatment works and we have delivered a range of demonstration scale trials of other sustainable solutions for nutrient removal such as ion exchange and algal bioreactors.

Recycling grit and screenings is another area of focus where we know there is potential for improvement through composting or use in construction.

The more efficiently we can extract valuable products from waste, the more we are supporting the delivery of a circular economy that protects the earth's resources and environment.

# Spotlight: innovation

**A lot of what will be needed to solve the climate and nature emergencies hasn't been invented yet.** So we know we need to innovate. This is relevant across all pillars of our environment strategy. And all parts of our business.

That's why we're committed to creating the conditions required for innovation to happen. Our open innovation model allows us to actively seek and bring new ideas into the water industry. We bring in research skills from universities or license our intellectual property to manufacturers, to enable them to deliver new goods and services into the water industry. A good example of this is our new £5m Resource Recovery and Innovation Centre near Birmingham, which is a testbed for new technologies and processes, open for collaboration with technology providers, academics and others.

The outcomes of innovation can be highly technological, or they can be simple - 'appropriate' technology. Either way, we embrace innovation as a critical part of our route to the future.

**LeakFinder ST.** Detecting and pinpointing leaks quickly and without having to resort to multiple excavations will be critical to our ability to conserve water resources and reduce disruption to our communities and customers. LeakFinder ST is a new patented technology, developed with our technology partner Echologics, which integrates sophisticated echolocation and computer processing technologies to help us quickly and cost effectively map leaks across our network.

**Phosphate Socks.** These don't involve complex or sophisticated technology. But they are a highly effective solution to the important and expensive problem of phosphate run-off from agricultural fields, into watercourses. Phosphate Socks are large, long fabric bags, containing material which absorbs phosphorus and sediment. They are easy to deploy strategically near to watercourses, to intercept flow lines of potential phosphorus run-off. And they're cost-effective. Our trials have suggested they could remove up to 99% phosphorous in run-off. This could save us £13M in capital costs in just one catchment!

## Scaling innovation requires investment

**We are now in a position to tap into additional sources of debt funding to support our sustainability ambitions,** through our Severn Trent Sustainable Finance Framework. In March 2020 we completed our first debt issue under the framework, which was used to assist in the development of our Severn Trent Green Power business. In June 2020 we issued our first sustainable bond, with a value of £300m, used to finance green and social projects across the business.

# 3.2 Making our material use ‘circular’

**We are now bringing the circular economy thinking and approach from our AD operations and applying it to the rest of our business.** We are already making good progress in reducing waste to landfill, diverting 87% of our audited waste from landfill. But we are now going beyond this by exploring how we can set ourselves targets not only for landfill diversion but also for material use reduction, reuse, recycling and recovery across all waste streams.

We guide and prioritise this based on evidence on their relative impact and environmental importance. The two largest areas of our business that this applies to are:

- **Office and facilities management**
- **Civil engineering**

## Office and facilities management

**We already achieve up to 99% diversion from landfill in some categories of facilities waste.** Improving on this means ensuring that we are working as high up the waste hierarchy (reduce, re-use, recycle) as possible. In practice this means: **(1) being selective and prudent in our procurement and use of material resources, (2) prolonging the operational life of everything we use, and (3) at end-of-life, we preserve as much value as we can.** It also means looking at provenance; that is, how what we use is sourced and manufactured, to ensure that it is sustainably produced using the earth’s resources judiciously.

We will put our principles into practice in all parts of the business, in some cases targeting materials specifically for their prominence, and their potential to effect culture change. So we have removed single-use plastic cups and bottles from our head office, a practice we’ll extend to other sites (though COVID-19 safety practices have made this more difficult this year). There are other areas too, where we can work with our customers to reduce waste generation, such as increasing the rate of paperless billing from the current 42%.



Making the most of our resources

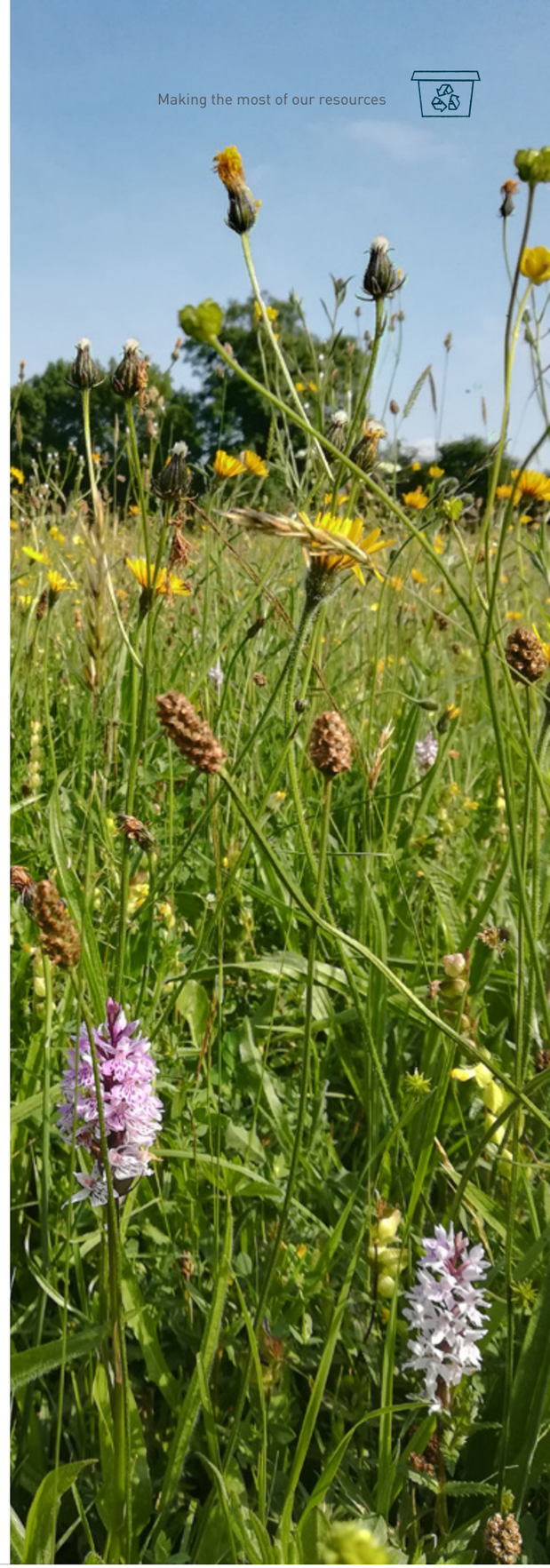
## Civil engineering

**While waste from office and facilities is associated with some of our highest value and impact waste -** such as cabling, and rare earth metals components in electronics, our capital works - construction and maintenance activities - use the largest volumes of material. Of this, excavated highway waste is one of our most significant categories of waste by weight - around 87,000 tonnes a year - and we currently divert two thirds of this away from landfill, a figure we are working to increase.

However, waste tonnage is only a crude measure of the impact of material use on the environment. We use data to actively target the highest impact areas of our material use. So for example, we will specifically target the GHG emissions associated with concrete and steel through: **(1) developing opportunities to source low-emissions product sources, (2) reducing material use through re-thinking asset design and management, and (3) finding ways to extend the life of our infrastructure through technology and good stewardship.**

Working in this way requires evidence and analysis. So we will build on our Scope 3 emissions assessment to gather other relevant data to allow us to assess the most impactful areas for action.

Putting the circular economy into practice across our business will also mean working extensively with our contractors and suppliers to influence their operations. This is a big challenge, and one where we are early on in the journey. Our ambition is to create an approach that can be embedded across working practices, policies and procedures. This will include supplier selection processes and contractual criteria, as well as engaging in joint initiatives and partnerships to push innovation in key areas.



# Making the most of our resources: our to do list

- Zero avoidable waste to landfill
- Build on our waste audit by identifying the most impactful waste reduction opportunities
- Create and embed a circular economy approach across the business
- Assess supply chain material use and identify key opportunities for improvement
- Identify opportunities and approaches for working with suppliers and contractors
- Continue to invest in innovation to drive extraction of resources from sewage sludge



# 4. Mitigating climate change

**We are at a key point in the fight against climate change,** and the actions that we take over the next 10 years will be critical in limiting global warming to 1.5 degrees.

# Our priorities for mitigating climate change

**Through our Triple Carbon Pledge, we are proud to join the growing number of companies worldwide who have made a firm commitment to net zero operational carbon emissions.** By deploying rigorous carbon accounting, setting clear and timely Science-Based Targets (SBTs), and pursuing efficiency and innovation, we aim to reach net zero operational carbon by 2030. That's 20 years ahead of the UK's national target.

There is now growing consensus amongst leading companies on the steps that we collectively need to take in order to avoid the worst impacts of climate change for humans and the natural world.

> As a water company we are already tuned-in to the impacts of changing climate and weather patterns on the water cycle.

So taking strong and urgent action now is not only in line with our values, but also safeguards the long-term integrity of the natural processes that we harness to deliver clean, affordable water to our customers. We believe that this is also absolutely in line with the expectations of our shareholders and other stakeholders, and aligns with our ambitions as a purposeful, innovative and forward thinking company.


**The good news is, we aren't starting from scratch on the journey to net zero operational carbon. Reducing our emissions and mitigating climate change has been an important priority for Severn Trent for well over a decade.** We have publicly reported our emissions through the Carbon Disclosure Project (CDP) since 2010. We are now reporting (will be our third TCFD report in September 2021) in line with the recommendations of the Taskforce on Climate Related Financial Disclosures (TCFD). Since 2007, we have reduced our Scope 1 and 2 operational emissions by 84% and grown our renewable energy generation from 100 GWh to over 500 GWh.

We now need to redouble our efforts to meet our ambitious targets, this is why in 2019, we announced our Triple Carbon Pledge of: **(1) net zero operational carbon, (2) 100% renewable energy and (3) 100% electric vehicles by 2030.** Our work is actively linked in to Water UK's Net Zero 2030 Routemap, which provides a framework for the entire sector to meet ambitious decarbonisation goals.

Our carbon reduction plan was approved in 2021 by the global Science Based Targets initiative (SBTi), just one of around 600 businesses globally to have done so at that time. Recognition from the SBTi – a collaboration between CDP, the United Nations Global Compact, World Resources Institute (WRI) and the World Wide Fund for Nature (WWF) - is widely accepted as providing the gold standard approval for emission reduction targets.

In January 2021, we signed up to the UN Climate Change Race to Zero campaign, pledging to deliver a water supply for customers that has net zero carbon emissions by 2030. Led by the United Nations Framework Convention on Climate Change ('UNFCCC'), we joined other companies from around the world to rally leadership across businesses, cities, regions and investors for a healthy, resilient and zero carbon recovery. Our net zero scope, definition and journey align with the wider water industry commitment to reach net zero as a sector by 2030.





Our greenhouse gas emission targets are consistent with reductions that are required to keep warming to 1.5°C, the most ambitious goal of the Paris Agreement. This commits us to reduce absolute scope 1 and 2 GHG emissions by 46.2% by FY2031 from a FY2020 base year.*

Our Scope 3 emissions (indirect emissions arising within the value chain) make up a significant part of our overall emissions. As such, we have set a Science Based Target to reduce Scope 3 GHG emissions from use of sold products by 13.5% by FY2031 from a FY2020 base year* and a target for 70% of our suppliers (by emissions covering purchased goods and services, capital goods, upstream transportation and distribution and waste generated in operations) to have set a carbon target in line with Science Based Target criteria by FY2026.

Measures across the rest of our environmental ambitions will contribute synergistically to our climate goals. Managing demand for water reduces the energy required for pumping and treatment, enhancing biodiversity boosts natural carbon sinks, and our circular economy priorities create efficiencies and tackle emissions embedded in capital projects and infrastructure.

Alongside areas of our business with relatively clear GHG mitigation pathways are areas that will require greater investigation and investment. For instance, we need to work now to develop solutions and options to tackle emissions from our biogas production facilities in the future; one avenue being carbon capture and storage.

We also need to build knowledge around the opportunities for carbon removals to offset any unavoidable emissions. As land managers, our first port of call is to utilise and boost the capacity of our own land to sequester emissions, where that complements other land management objectives. To do this we need to rapidly quantify and analyse the potential and build capacity to put this into practice.

*The target boundary includes biogenic emissions and removals from bioenergy feedstocks.

**Our priorities are:**

- Cutting our direct emissions
- Increasing energy efficiency and renewables
- Quantifying and abating scope 3 emissions

# 4.1 Cutting our direct emissions

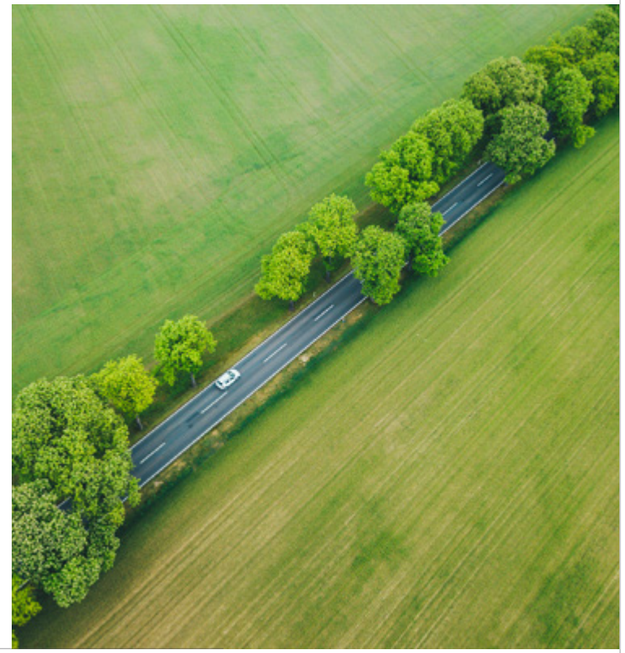
**Greenhouse gas emissions generated directly by our biological waste management processes,** and by fossil fuels used in our assets (Scope 1) account for 164kt CO2e every year. These emissions come from a number of sources, including:

- **Our vehicle fleet**
- **On-site fossil fuel use**
- **The wastewater treatment process**

## Our vehicle fleet

**Fuel used by our cars, vans and tankers accounts for some 11% of our direct emissions.** In addition to reducing mileage from unnecessary journeys and encouraging efficient driving behaviour, our transition to electric vehicles will be key to eliminating these Scope 1 emissions. Our 100% EV policy is already active, with all new cars purchased now electric, extending to all new vans by 2023. We are now installing over 350 charge points across over 65 sites. Electric HGVs and tankers may not be available by 2030, so we are exploring alternative low-carbon options such as hydrogen and biogas.

We are also helping our employees to move to more sustainable travel and cut their emissions. All employees can now go electric through a salary-sacrifice scheme. The monthly lease payment includes insurance, maintenance and roadside assistance, and is taken from gross pay, so reducing tax. We also run a salary-sacrifice tax-saving cycle-purchase scheme, as well as promoting discounts with local travel providers to encourage travel on public transport.







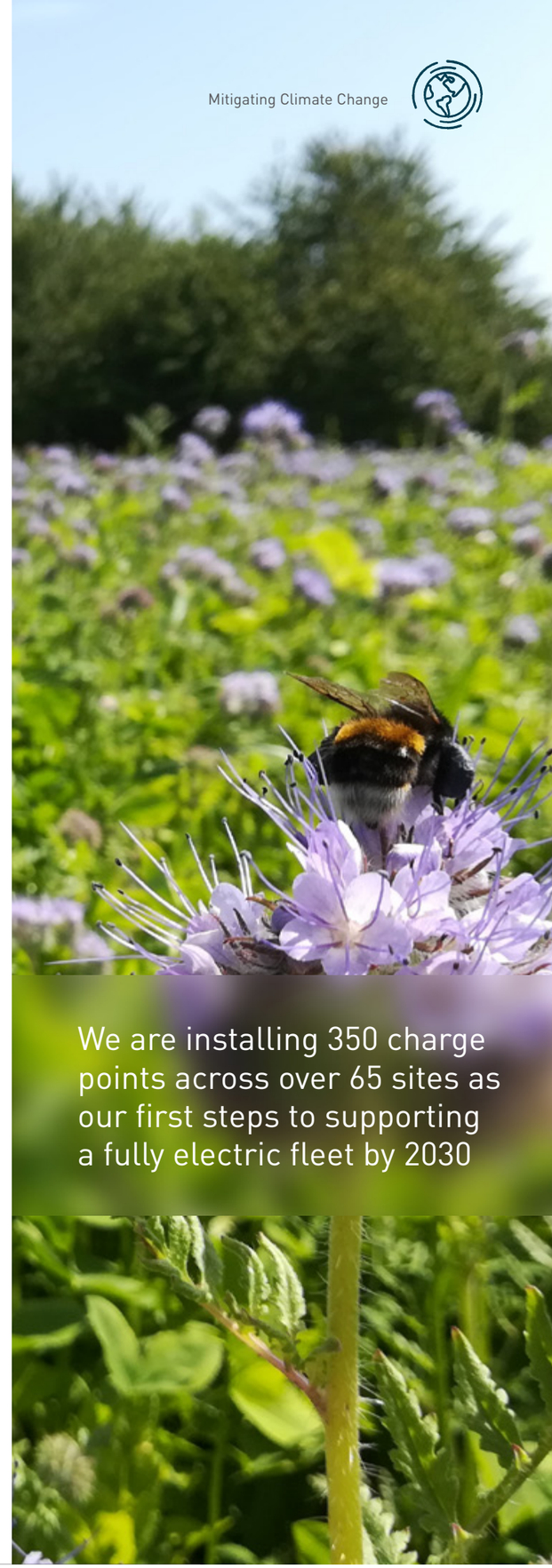
## On-site fossil fuel use

**18% of our direct emissions are from on-site fossil fuel use, including gas oil used for heating anaerobic digesters,** fixed backup generators using diesel, and natural gas for boilers and engines. Some improvements can be through efficiencies such as better heating and cooling management in buildings, and better insulation. But there are also tradeoffs - our increasing use of thermal hydrolysis to improve nutrient and energy extraction from biosolids requires more gas to be burned. So ultimately we need to replace fossil fuels with other methods of heat and power generation, including electricity, biofuels, ground source heating and solar thermal heating. We will base our investments on targeted options appraisal to get as close to zero as possible before offsetting remnant emissions.

## Process emissions

**The greatest challenge, however, is in addressing the 71% of direct emissions that come from our waste and sludge treatment processes.** And indeed this figure may rise as the science around the measurement of these emissions improves (something we are contributing to through three industry-first emissions monitoring trials). This is a world scale issue - across the wastewater sector globally, emissions of methane and nitrous oxide from the degradation of organic matter during treatment represent 1.5% of all anthropogenic emissions and 4-5% of all non-CO2 emissions.

These emissions can be reduced through minimising unintended escapes of biogas, and improvements to processes. But to make significant headway deeper technological innovation is needed. Whilst we are establishing current options on the basis of impact, cost, likelihood and timing, in many cases solutions are not yet ready to be deployed. We therefore need to focus innovation and partnership efforts on this area, alongside ensuring that process emissions are a key consideration in our asset design and long-term asset strategy.



We are installing 350 charge points across over 65 sites as our first steps to supporting a fully electric fleet by 2030

**Nature's processes also maintain a genetic library, preserve and regenerate soil,** control floods, filter pollutants, assimilate waste, pollinate crops, maintain the hydrological cycle, regulate climate, and fulfil many other functions besides. Without those regulating and maintenance services, life as we know it would not be possible.

The Dasgupta Review, read more here



# 4.2 Increasing energy efficiency and renewables

**Emissions relating to purchased or acquired electricity constitute** 183kt CO2e per year on a location basis (i.e. based on standard grid carbon factor).

Water utilities are a major user of electricity, with pumping the main source of demand, followed by compressors and blowers for aeration. There are two main routes that we are using to reduce emissions:

- **Managing our energy use and**
- **Boosting renewable energy supply**

Mitigating Climate Change

## Managing our energy use

**We project that our long-standing efficiency programme will allow us to keep our energy use broadly flat over the next ten years,** despite new more energy-intensive treatment processes and the increasing use of pumped water transfers.

Much of this will be achieved by our ongoing programmes to minimise leakage and water use, which both contribute to energy use reduction by reducing the volumes of water we need to pump and treat. Alongside this we will continue to generate efficiencies by improving the operation of our existing assets.

The next level of reductions will require a new approach to design standards, and to our long-term asset strategy, factoring in comparisons of whole-life energy consumption values. And where low-energy solutions don't exist yet, we will invest in technology innovation - in areas such as efficient treatment processes - to create those solutions.

## Boosting renewable energy supply

**In common with the rest of the water industry, many of the 'lower hanging fruit' investments in this area have already been made,** and future energy efficiency gains will be harder-won. Where we still rely on electricity from the national grid we will procure 100% renewable-backed electricity through our suppliers.

We will now improve on this pledge by linking our energy use explicitly to the creation of new renewable energy assets and capacity. We already generate renewable energy equivalent to 53% of Severn Trent Water's electricity consumption, from anaerobic digestion, solar, wind and hydro power assets. By 2030 we aim to further increase the generation of renewable energy, either through growing our own capacity or through entering power purchase agreements which provide certainty to new third party renewable projects and guarantee a stable future energy price.

## 4.3 Quantifying and reducing scope 3 emissions

**Our direct emissions and energy supply only tell part of the story.** Other activities carried out on our behalf or embedded in the materials we use to create and maintain our assets and infrastructure are also associated with significant emissions. While these are not in our direct control, as an organisation that procures goods and services we are in a position to change how and what we procure, and to influence and support our suppliers and other stakeholders in reducing their emissions.

Our action on scope 3 emissions is focused on:

- **Understanding where and how big those emissions are - quantifying scope 3 emissions**
- **Working with our suppliers to influence a reduction in their emissions through engagement, collaboration and sourcing**

### Quantifying Scope 3 emissions

**Our first step in this area is to quantify our Scope 3 emissions,** which we have already started doing as part of our Science-Based Target setting. There are a wide range of Scope 3 emissions sources, however some of the most significant include construction materials and activities, goods we procure such as chemicals used in water treatment, and fuel use by contractors.

As the quantification of our Scope 3 emissions becomes part of our regular emissions reporting cycle, it will allow us to build a base of information on which we can construct a long-term strategy that targets the most significant areas of scope 3 emissions.

### Working with suppliers

**Based on our initial assessment, we know that working with our suppliers will be one of our priority areas to influence Scope 3 emissions.** Work is already underway to develop requirements for our suppliers to demonstrate they are taking action to measure and reduce their emissions, and our initial aim is for a substantial number of our largest suppliers to set a carbon target in line with Science Based Target criteria by FY2026. We will work proactively with our suppliers to support them in their efforts to target high-potential emissions reductions. In line with our circular economy approach we are also putting tools in place that will enable us to measure embedded carbon in our asset designs; establishing new criteria that factor whole-life carbon into the decision making process alongside other considerations.





# Mitigating climate change: our to do list

- Take robust actions to meet our Triple Carbon Pledge by 2030 and deliver against our Science Based Targets
- Focus research and innovation around tackling process emissions
- Increase the percentage of our electricity from self-generation or PPAs
- Refine our understanding of Scope 3 emissions, engage our suppliers and prioritise action areas
- Develop a clear greenhouse gas offsetting protocol, prioritising sequestration through management of our own land and catchments in our region

# Spotlight: finding joined-up solutions

**A critical theme across sustainability solutions, for ourselves but also more generally, is that they are 'joined up'.** That means they link into, adapt and improve the systems that were once creating the problem - rather than being a bolt-on, that is easy to bolt-off again. And it means they are designed to solve more than one problem at once - creating multiple benefits and opportunities for efficiency.

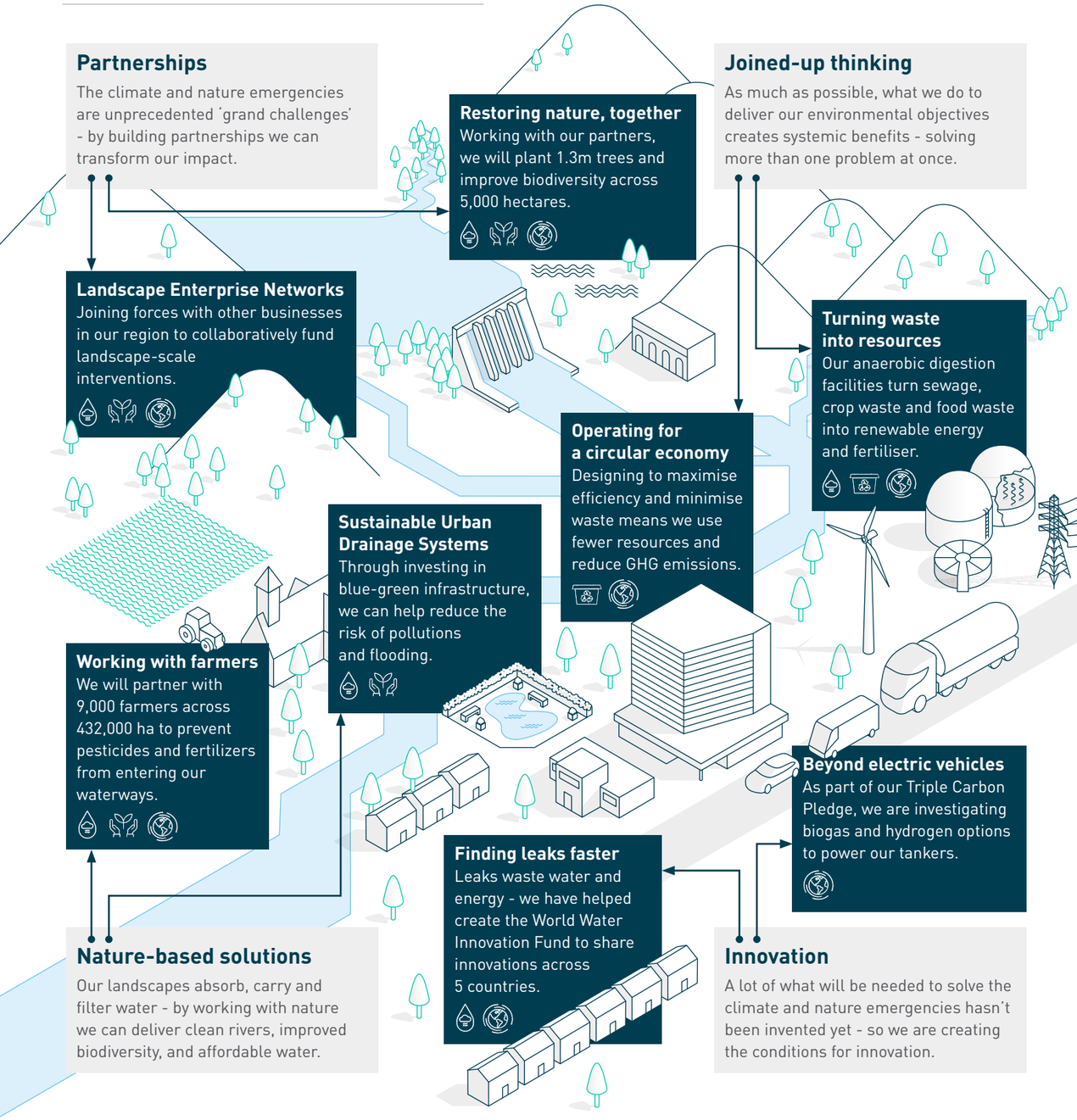
These joined-up solutions occur across our environmental activity - from nature-based solutions that deliver for nature, water catchment outcomes, and resource efficiency, to our high, and not-so-high-technology innovations to address leaks and pollution. It's also a feature of our longstanding and significant investments in renewables.

**Creating energy from waste.** Severn Trent has been at the forefront of using outputs from the sewage treatment process to recover and generate energy. Now Severn Trent Green Power integrates food waste into its Anaerobic Digestion (AD) process, contributing the processing of vast amounts of UK food waste into the generation of our power needs. A win-win-win, helping process sewage, food waste, and displacing fossil energy with renewable energy.

**CCm Technologies.** In one of our more recent and most exciting 'joined up' innovation projects we are working in partnership with CCm Technologies to trial the production of a high grade fertiliser pellet using biosolids and recovered ammonia and CO2 from our waste treatment plants. This creates another win-win-win for us; converting waste into a saleable product, deploying a fertiliser which helps improve soil condition and reduce nutrient run-off, and both capturing and avoiding GHG emissions.

# Working across the landscape

Our approach to the environment integrates initiatives across our region - from wild moors to urban areas - delivering our climate and biodiversity goals, and clean water for our customers.






# Wider business and sustainability strategies

**Caring for our Environment constitutes part of our overall Sustainability Framework** and provides our direction of travel and the high level aspirations that we will work towards under four key pillars.

Further detail is available in individual strategy and policy documents which can be found on our website **stwater.co.uk** and **severntrent.com.** To follow our progress, and full details of reporting our annual performance can all be found in our **Sustainability Report.**

# Glossary

**AMP7:** Asset Management Period for the five-year regulatory period starting 1 April 2020.

**DWMP:** Drainage and Wastewater Management Plan – covers the investments we plan to make over the next five-year period, 2020-25, as well as setting out a long-term (25-year) strategy for how we are going to deliver a reliable and sustainable waste water service.

**Government's 25 Year Environment Plan:** www.gov.uk/government/publications/25-year-environment-plan

**Natural capital:** The value created for people, directly or indirectly, by ecosystem services from the natural world.

**Net Zero & Water UK:** Water companies have unveiled a ground-breaking plan to deliver a net zero water supply for customers by 2030 in the world's first sector-wide commitment of its kind. www.water.org.uk/routemap2030/

**Paris Agreement:** An agreement within the United Nations Framework Convention on Climate Change, with a long-term goal to keep the increase in global average temperature to well below 2°C above pre-industrial levels; and to pursue efforts to limit the increase to 1.5°C, recognising that this would substantially reduce the risks and impacts of climate change.

**PAS100:** The British Standard Institution published a specification for compost materials known as BSI PAS 100 which applies across the UK. The aim of the BSI PAS 100 is to try and improve confidence in composted materials among end users, specifiers and blenders. Also it will help producers distinguish products that are safe, reliable and high performance from those that are not. Find out more here.

**PCC:** Per capita consumption is the average amount of water used by each person that lives in a household property.

**PR14/24:** The price review is a financial review process led by Ofwat where wholesale controls for water and sewage companies are set every five years.

**Quality Protocol - Compost:** www.gov.uk/government/publications/quality-protocol-for-the-production-and-use-of-compost-from-waste

**REGO:** Energy which is backed by Renewable Energy Guarantees of Origin. The REGO scheme is a Government scheme, regulated by Ofgem, which provides transparency to consumers about the proportion of electricity that suppliers source from renewable generation.

**Science Based Targets:**

**Scope 1 emissions:** All direct emissions from the activities of the business.

**Scope 2 emissions:** Indirect emissions from electricity purchased and used by the business.

**Scope 3 emissions:** All other indirect emissions from activities of the business, but occur from sources that we do not own or control.

**Storm Overflow or CSO:** Combined sewer overflow – an asset on our sewer network that acts as a relief point when combined sewers are overwhelmed with rainwater allowing discharge into rivers/watercourse.

**TCFD:** Task Force on Climate-related Disclosures The Taskforce on Climate-related Financial Disclosures (TCFD) recommendations are designed to achieve consistent, decision-useful, forward-looking information on the material financial impacts of climate-related risks and opportunities, including those related to the global transition to a lower-carbon economy.



**TCFN:** Taskforce on Nature-related Financial Disclosures: - the TNFD will build awareness and capacity to enable the financial sector to address the market and systemic failures contributing to the destruction of nature.

**World Water Innovation Fund:** Supported by water companies from around the globe, has been set up to help change and protect the future of water for everyone. www.waterinnovationfund.com

**WRMP:** Water Resources Management Plan – sets out how we'll manage supply and demand to mitigate the impact of climate change and meet our environmental obligations for the next 25 years. www.severntrent.com/content/dam/stw-plc/our-plans/severn-trent-water-resource-management-plan.pdf

# References


**1m species at risk of extinctions**

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- UK's official analysis from JNCC says 14 out of 20 targets are not on track. jncc.gov.uk/our-work/united-kingdom-s-6th-national-report-to-the-convention-on-biological-diversity/
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**25% of UK mammals at risk of extinction**

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