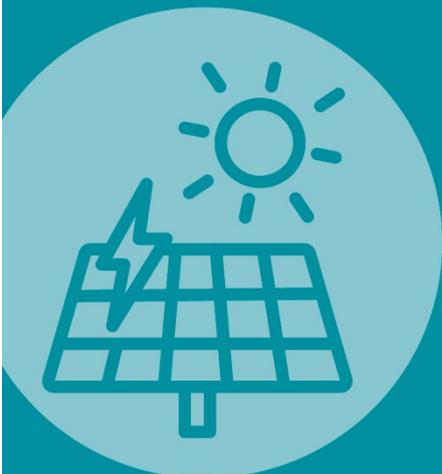


# Route map to net-zero carbon emissions

June 2021





## SES Water – our route map to net-zero carbon emissions

### Executive summary

We are an energy-intensive business abstracting, treating and pumping 160 million litres of water each day to 735,000 customers in parts of Surrey, south London, Kent and West Sussex.

We operate a network of 62 operational assets and 2,000 miles of water mains across 322 square miles. Each million litres of water we supply produces around 55 kg of CO<sub>2</sub>e and we currently produce around 9.5 tonnes of greenhouse gas emissions every day<sup>1</sup> through our day-to-day operations.

Over the last 10 years we have cut our operational greenhouse gas emissions by 89% through increasing our use of renewable energy, becoming more energy efficient and reducing our reliance on fossil fuels.

By 2030 we are committed to achieving net-zero operational carbon emissions, in-line with the Public Interest Commitment made by all the English water companies [Water UK – Net Zero 2030 Routemap](#)

We've developed a route map to get us there focused primarily on managing the demand for water and energy. We will:

- become more energy efficient
- reduce demand for water
- generate more energy from renewable sources
- decarbonise our fleet of vehicles
- phase out our use of fossil fuels.

We'll work with our employees, supply chain and customers to help us achieve our target and, in the longer term, we'll also take steps to reduce the embodied carbon produced as we build and develop new assets.

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<sup>1</sup> 2019/20 data



## The view of our CEO

As a water company, we rely on the natural environment to provide water for us to treat and deliver direct into customers' homes and businesses.

But abstracting, treating, and moving that water is an energy-intensive process that emits millions of tonnes of greenhouse gas each year – a big contributor to our changing climate which, in turn, threatens the very same natural environment that we are so reliant upon for water.



Water companies have long recognised that all their activities have a carbon footprint – whether it's operating treatment systems, pumping water, building new infrastructure, or interacting with the natural water cycle more widely.

The water sector is the fifth largest emitter of Greenhouse Gases in the UK<sup>2</sup> which is why, in November 2020, the industry published its net-zero operational carbon route map. Using over a decade's worth of sector-level emissions data, the route map provides a view of what the sector's journey to net zero carbon emissions may look like – via three pathways – and made a series of commitments to get there.

And that's where we, SES Water, take up the net zero carbon emissions baton. Taking the sector wide commitments as the starting point, this document adds the all-important factors of our unique supply area – from the geography, water sources and customer demographics – to set out our own route map.

Our route map is based on something called the 'demand-led' pathway already developed by the industry; that is, our route map will focus on *managing demand* for water so that we need and use less of it and, in turn, emit less carbon. We believe that is the most collaborative way to work with our customers and local communities and deliver net zero carbon emissions by 2030 – some 20 years before the economy is expected to as a whole.

We hope you find this document informative and inspiring in equal measures but if you have any comments or observations then please do tell us by emailing [communications@seswater.co.uk](mailto:communications@seswater.co.uk).

A handwritten signature in black ink that reads "Ian Cain". The signature is written in a cursive, flowing style.

Ian Cain  
Chief Executive Officer

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<sup>2</sup> Source: Office for National Statistics – UK Environmental Accounts, Atmospheric emissions datasets 2018



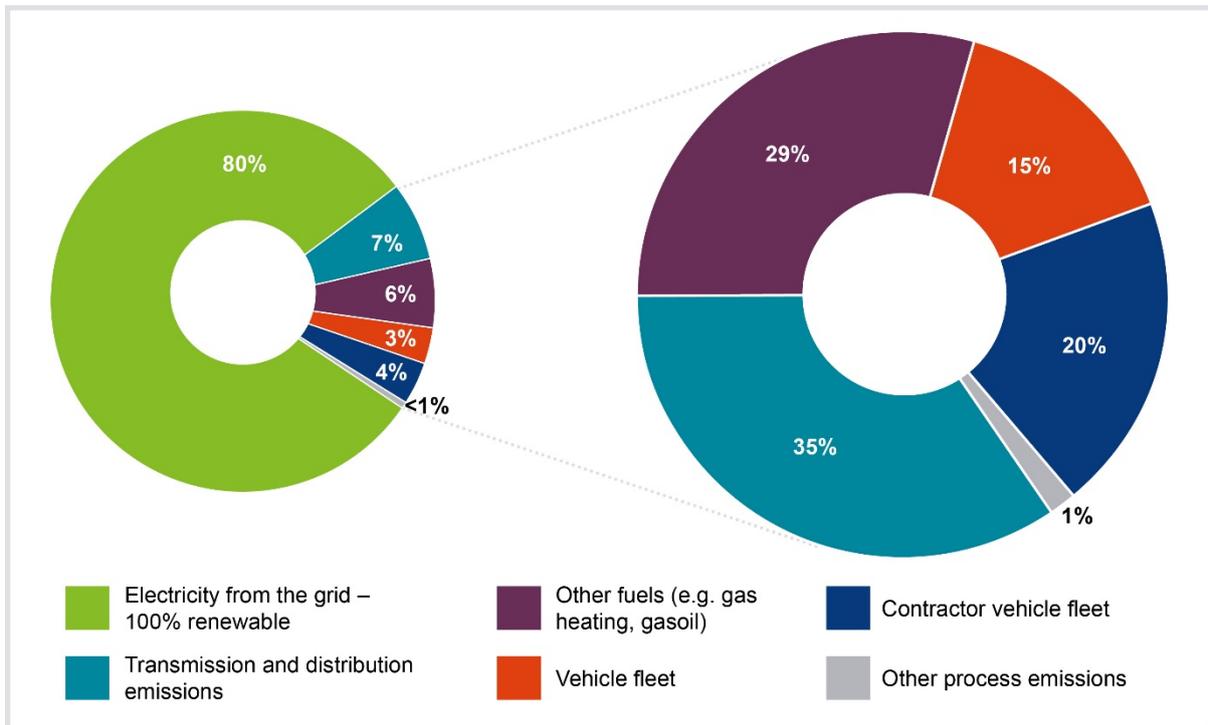
## What makes up our carbon footprint?

Our operational carbon footprint is made up of emissions from six areas:

- Electricity from the grid
- Transmission and distribution emissions
- Other fuel use (gas heating, gasoil)
- Vehicle fleet
- Contractor vehicle fleet
- Other process emissions

Figure 1 shows how much each contributes to our operational carbon emissions. The majority of our emissions come from the electricity we purchase to run our operations. However since 2018, we have relied entirely on renewable electricity backed by Renewable Energy Guarantee of Origin certificates (REGO). This means that renewable electricity generated in the UK is allocated specifically against our consumption by registering the certificates with Ofgem in our name. This certification scheme helps to drive further investment in renewable generation in the UK, particularly from generators who don't have direct relationships with end users.

Figure 1: 2019/20 SES Water operational carbon emissions



We categorise our operational carbon emissions in the three scopes defined by the Greenhouse Gas Protocol.



Scope 1	Scope 2	Scope 3
Direct emissions from the burning of fossil fuels; process and fugitive emissions; transport (company owned/leased vehicles).	Indirect emissions from the generation of purchased electricity, steam, heating and cooling.	Other indirect emissions: business travel (public transport and private vehicles on company business); outsourced activities not in Scopes 1 & 2; Transmission and Distribution of purchased electricity.

Our operational emissions (not including the electricity purchased from renewable sources) are split almost equally between scopes 1 and 3.

## Our carbon footprint – early actions we have taken to get us to where we are now

We have been measuring our carbon footprint for 10 years, using the Carbon Accounting Workbook<sup>3</sup>, and have used this to proactively decrease our carbon emissions and reduce our impact on the environment.

Our carbon footprint today is 89% lower than 10 years ago because of the changes we have already made to how we source and use energy

We have:

- **Focused** on water efficiency and leakage reduction measures to reduce the amount of water needing to be abstracted, treated, and distributed in the first place
- **Invested** in energy efficient pumps and variable speed drives and renewable energy generation solutions on our own sites
- **Purchased** green electricity, allowing us to accelerate our focus on elements of our carbon footprint not associated directly with electricity consumption.

### Water treatment goes green

We have made the switch to renewable electricity for all our treatment works, pumping stations and offices, and now only consume electricity that has a Renewable Energy Guarantee of Origin (REGO) certificate that traces the source and destination of every megawatt-hour (MWh). Purchasing electricity that is backed by REGOs supports the investment in renewable generation in the UK and reduces the environmental impact of our operations.

<sup>3</sup> The Carbon Accounting Workbook was developed by UKWIR to enable all water companies to consistently measure and report their carbon emissions.



### Fleet switches to electric

All of our company cars will soon be electric or plug-in hybrids with employees also being offered home-charging technology. Our commitment builds on a previous trial which saw us replace 12 of our operational vans with fully electric models and invest in 42 new charging points across our sites.

Each electric car in our fleet saves around two to three tonnes of carbon dioxide per year as well as reducing the impact on local air quality. And, as COVID-19 restrictions ease, we are adopting a more agile way of working with more flexibility for employees to work at home, further reducing the number of journeys they are making.



### Flushed with success



At our brand-new state-of-the-art education centre at Bough Beech Reservoir we have installed a rainwater harvesting system so the toilets are flushed using rainwater collected from the roof.

We are also teaching visitors specifically about the link between water use, carbon emissions and climate change in addition to our water treatment process talks to spread the carbon message.

## Our net-zero-carbon route map

Our route to net-zero operational emissions will take us down a 'demand-led' pathway. We consider this to be the most affordable, sustainable and resilient way to achieve net zero carbon by 2030, supported by existing technologies such as renewable generation and electric vehicles.

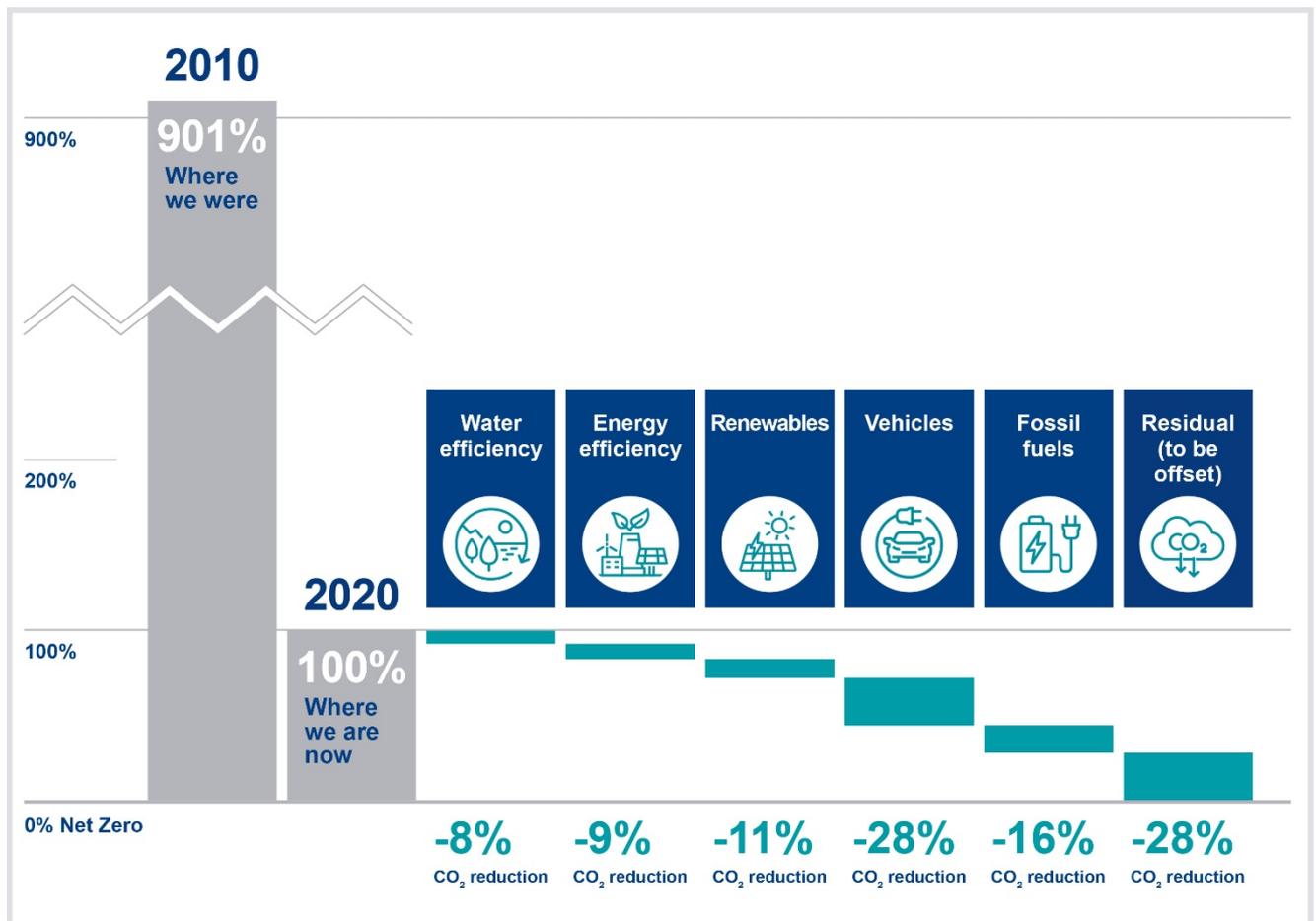
A demand-led approach is challenging but by engaging and collaborating with our customers, supply chain partners, local businesses and other stakeholders we can make sure that our activities not only reduce carbon, but deliver wider social, economic and environmental benefits as well. For example, by helping customers reduce their water demand, it not only delivers carbon savings for us as a business but reduces the amount of water abstracted from the environment, protecting habitats, reduces the amount customers have to spend on water and, where water is then heated before use, reduces the customers' energy bill and their own carbon footprint.



There are five strategic areas of focus to our net zero carbon route map that will reduce our annual operational carbon emissions by 2,411 tonnes.

In each of these areas we will:

- Demonstrate environmental and customer benefit
- Involve the customer and our community in our commitments
- Aim to sustain and enrich lives





## Water efficiency



### Our ambitions:

We will reduce the amount of water we abstract from the environment.

We will provide customers with data and tariffs that help them to use less too.

We will roll out more rain/greywater solutions for certain uses when new connections are made to our pipe network.

### We are aiming to achieve:

% reduction in water abstracted annually <b>10% by 2025</b> <b>25% by 2030</b>	% customers with smart meters <b>25% by 2025</b> <b>100% by 2030</b>
% customers on smart tariffs <b>10% by 2025</b> <b>100% by 2030</b>	% new connections with a rain/greywater supply <b>25% by 2025</b> <b>100% by 2030</b>

### Immediate actions:

- Improve how we measure the amount of water we use in our operations and reduce wastage including from leakage
- Help customer reduce how much water they use by installing smart meters in their homes

2030 carbon reduction target:  
**261 tonnes CO<sub>2</sub>e (11% of overall reduction)**





## Energy efficiency



### Our ambitions:

We will reduce the amount of energy it takes to deliver each litre of water through greater monitoring and control of our energy consumption, and work with customers to reduce their energy use through water efficiency initiatives.

We will engage employees and our supply chain partners on our energy saving initiatives to spark their ideas on more energy saving opportunities.

### We are aiming to achieve:

kWh (kilowatt hours) reduction in electricity consumption

**10% by 2025**

**15% by 2030**

Increased submetering of our consumption

**25% by 2025**

**50% by 2030**

### Immediate actions:

- Use data from enhanced submetering to identify opportunities for further energy efficiency
- Implement 2019 ESOS findings as appropriate, such as reviewing the operation of transformers and/or replacing older transformers with more energy efficient ones
- Supporting our on-site teams to implement energy efficiency projects

2030 carbon reduction target:

**300 tonnes CO<sub>2</sub>e (12% of overall reduction)**





## Renewables



### Our ambitions:

We'll continue to source electricity from renewable sources and increase the amount generated on our own land – and encourage communities to invest in projects on our land so they can share the benefits too.

We are aiming to achieve:	
% of electricity demand met by on-site generation of renewables <b>10% by 2025</b> <b>20% by 2030</b>	% of electricity demand sourced through off-site renewables, directly purchased through commercial power purchase agreements <b>20% by 2025</b> <b>30% by 2030</b>
% community ownership of on-site renewables <b>5% by 2025</b> <b>5% by 2030</b>	

### Immediate actions:

- Continue with planned solar installations on our operational land at or close to treatment works at Fetcham Springs and Bough Beech
- Secure a third-party partner by end of 2021 to deliver large-scale installations

2030 carbon reduction target:  
**380 tonnes CO<sub>2</sub>e (16% of overall reduction)**





## Vehicles



### Our ambitions:

We will increase the number of emission-free miles which our staff travel to do their jobs and eliminate fossil fuels from our fleet of vehicles.

We will invest in more, accessible charging point infrastructure – not just for our staff but customers too.

### We are aiming to achieve:

% switch to electric vehicles

**10% by 2025**

**100% by 2030**

% reduction in miles travelled

**20% by 2025**

**50% by 2030**

### Immediate actions:

- Continue deployment of electric commercial vehicles and fleet passenger vehicles
- Roll out home charging points for employees
- Complete roll out of charging points at all operational treatment works.

2030 carbon reduction target:

**930 tonnes CO<sub>2</sub>e (39% of overall reduction)**





## Fossil fuels



### Our ambitions:

We will phase out the use of fossil fuels for heating and we will convert or replace diesel generators, so they run on renewable fuel or battery alternatives.

### We are aiming to achieve:

% reduction in gas consumption

**50% by 2025**

**100% by 2030**

% reduction in gasoil consumption

**50% by 2025**

**100% by 2030**

### Immediate actions:

- Replace gas and gasoil heating systems at end of life with renewable electric heating
- Replace fossil fuel emergency generation equipment with HVO or biodiesel

2030 carbon reduction target:

**540 tonnes CO<sub>2</sub>e (22% of overall reduction)**



We do expect to see significant change between now and 2030 including regulatory transformation and technology innovation which may mean we change our ambitions, always aiming to keep our route map focused on the most sustainable, resilient and lowest cost path to net zero.



## Delivering wider benefits

We've used the six capitals approach to show our carbon reduction activities help deliver wider benefits and greater value to society.

	 Water efficiency	 Energy efficiency	 Renewables	 Vehicles	 Fossil fuels
Financial	Lower cost of electricity  Lower cost to customers  Return for community investors	Lower cost of electricity  Lower cost to customers	Lower cost of electricity  Lower cost to customers  Return for community investors	Lower cost to operate fleet	Cost savings
Manufactured	Smart meter technology  Rain and grey water harvesting technology	More efficient assets using more sophisticated control systems	New solar assets	Additional charging infrastructure  Fewer vehicle assets owned	New technology and assets
Intellectual	Better understanding of water consumption patterns	Better understanding of energy consumption  More efficient operation	Enhanced understanding of opportunities for use of our operational land	Garage gains greater expertise in maintaining electric vehicles	Knowledge of HVO/hydrogen systems gained
Human	Growth in water efficient goods  Growth in supply chain (smart meters / recycling technology)	New jobs created for analytical and on-site roles	Jobs in the solar supply chain locally and nationally	New jobs in charging infrastructure supply chain	Supporting jobs in supply chain partners
Social	Enhanced blue spaces	Reduction in overall demand for generation infrastructure	Community pride due to contribution to tackling climate change	Quieter communities and less polluted air  Less congestion on the roads	Reduction in air pollution
Natural	Less water abstracted from the environment  Biodiversity enhanced	Reduced GHGs helps mitigate climate change	Biodiversity maintained  Reduced GHGs helps mitigate climate change	Reduced GHGs helps mitigate climate change  Less future needs for new road infrastructure helps protect biodiversity	Reduced GHGs helps mitigate

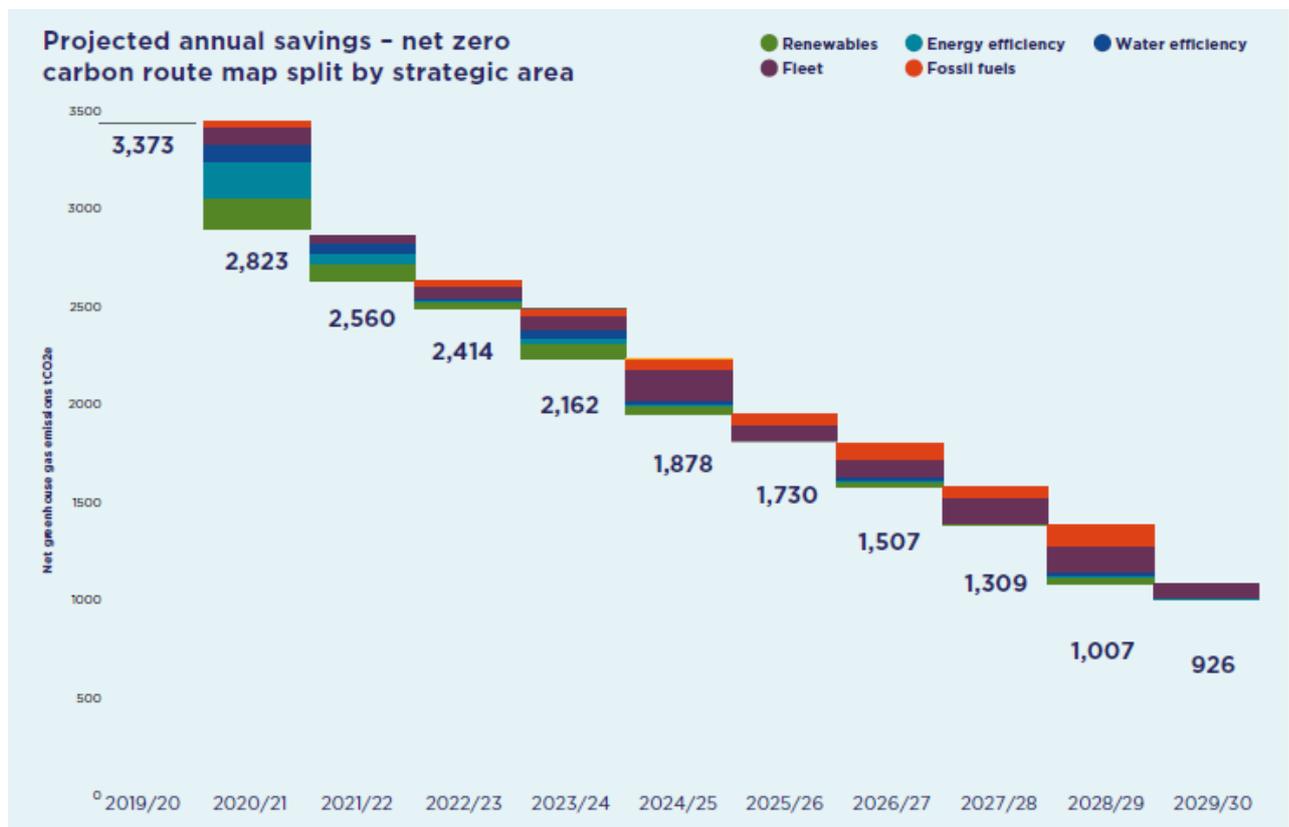


## Our operational carbon footprint – where we hope to be by 2030

By 2030, we want to achieve more than a 70% reduction in operational carbon emissions compared to our 2019/20 emissions. Any residual emissions in 2030 will need to be offset through the purchase of credible, robust carbon offsets. The need for offsetting is a key challenge, our response to which will evolve between now and 2030, in dialogue with stakeholders including Ofwat.

The ambitions we have set are challenging and tackle all sources of emissions within our operational carbon footprint with an equal degree of priority. We believe our route map represents a practical and affordable path to net zero which will involve close working between SES, our customers, and our partners. The projected annual savings we expect to make as a result of our net-zero carbon route map are shown in Figure 2.

Figure 2: Projected annual savings due to net zero carbon route map split by strategic area



N.B. the data in this table is a forecast and is based on our ambitions set out in our net zero carbon routemap



We expect there to be significant change between now and 2030 both in terms of legislation related to climate change and also in terms of technology development. These changes may make different elements of our routemap more or less feasible or could lead to new opportunities being identified which are not currently included. For this reason, we will review our routemap annually and revise it as necessary to ensure that it remains relevant and realistic.

## Future priorities – embodied carbon and carbon sequestration

This route map focuses primarily on reducing our operational carbon emissions, so we achieve net zero carbon by 2030. In addition to these five areas of strategic focus we will continue to work on reducing carbon emissions associated specifically with our capital investment programme – known as embodied carbon. In 2021/22 we will introduce a system to measure capital carbon emissions and will be collaborating with other water companies to develop a robust, comparable reporting methodology so we can all report our progress in this important area. This will lead to more informed decision-making with regards capital investment and a focus on reducing our embodied carbon emissions.

Carbon sequestration is the term given to the naturally occurring capture and storage of greenhouse gases by land and vegetation. We are a significant landowner and are committed to restoring and improving the biodiversity found on our sites.

Simultaneously we are developing projects to sequester larger amounts of carbon through sustainable agriculture practices on our landholdings. This will have a longer-term impact on carbon emissions beyond the 2030 net zero timeframe.



## What happens next?

Achieving our net zero carbon ambitions is not something we can do on our own. We need to take our customers, communities and supply chain partners on this journey too because they can influence the carbon emissions produced by supplying water.

This is the approach we will follow to implement our net zero route map:



Involve customers and employees



Consider carbon reduction in our short-term decision making



Develop our longer-term plans with carbon reduction at the heart of sustainable approach



Measure and report on our progress annually

We would welcome comments and views on our carbon route map so please do contact us at [communications@seswater.co.uk](mailto:communications@seswater.co.uk) to play your part.