

Our operational performance continued



Our approach to **climate change**

As we have already highlighted in this report, climate change impacts, amplified by population growth present huge challenges, particularly in the South East. This is why they are both listed as principal risks to our ability to operate. Mitigating their impacts will make sure that we are able to maintain high-quality, resilient services for our customers in the future.

An increase in the frequency of drought is one negative impact of climate change we are already experiencing. The beginning of 2022 was one of the driest years on record (for the past 131 years), and river flows were approximately 25% lower than they should have been. As a result, in Summer 2022 we introduced drought restrictions across part of our region, in Hampshire and on the Isle of Wight. A Temporary Use Ban was in place from 5 August 2022 to 4 November 2022. Our Drought Plan sets out how we would deal with a drought in our region and is regularly updated to make sure that we can maintain supplies of drinking water to our customers

while minimising the impact on our rivers and the environment during drought events.

In 2023 we are voluntarily adopting the Task Force for Climate-related Financial Disclosures (TCFD) reporting recommendations and Guidance for All Sectors for UK large private companies and have enhanced our disclosure on the risks that climate change poses to our business.

The following sections address how we incorporate climate change into our governance processes, the potential impact on our business model, strategy and financial planning, the risk management processes, and the climate-related metrics and targets we use. The sections and subsection headings correspond to the four thematic areas and 11 recommendations of the TCFD framework. Given its complexity, and to aid readers of the accounts, at the end of each section we provide links to further disclosures that can be found separately on our website.

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TCFD index table:

Recommendation	Recommended disclosures	Disclosure level	Reference (Annual Report)	Reference (other reports)
1. Governance Disclose the organisation's governance around climate-related risks and opportunities.	a) Describe the board's oversight of climate-related risks and opportunities.	Full	Strategic Report <ul style="list-style-type: none"> Our approach to climate change: Governance, pages 77 to 79. Engagement with stakeholders, pages 33 to 39. Financial performance <ul style="list-style-type: none"> Risk oversight and governance, pages 122 to 123. 	
	b) Describe management's role in assessing and managing climate-related risks and opportunities.	Full	Governance <ul style="list-style-type: none"> Remuneration policy, applicable in year (unaudited), pages 189 to 201. 	
2. Strategy Disclose the actual and potential impacts of climate-related risks and opportunities on the company's businesses, strategy, and financial planning where such information is material.	a) Describe the climate-related risks and opportunities the organisation has identified over the short, medium, and long term.	Partial		Net Zero Plan Climate Change Adaptation Report, 2021 Long-Term Priorities
	b) Describe the impact of climate-related risks and opportunities on the organisation's business, strategy, and financial planning.	Partial	Strategic Report <ul style="list-style-type: none"> Our approach to climate change: Strategy, pages 79 to 84. 	Draft Water Resources Management Plan Drainage and Wastewater Management Plan
	c) Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a two degree or lower scenario.	Partial		
3. Risk management Disclose how the company identifies, assesses, and manages climate-related risks.	a) Describe the organisation's processes for identifying and assessing climate-related risks.	Full		Draft Water Resources Management Plan Drainage and Wastewater Management Plan
	b) Describe the organisation's processes for managing climate-related risks.	Full	Strategic Report <ul style="list-style-type: none"> Our approach to climate change: Risk management, pages 85 to 86. Financial performance <ul style="list-style-type: none"> Risk management approach, pages 120 to 121. 	Drought Plan Climate Change Adaptation Report, 2021
	c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation's overall risk management.	Full		
4. Metrics and targets Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.	a) Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process.	Partial		Annual Performance Report, 2023
	b) Disclose Scope 1, Scope 2, and if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.	Full	Strategic Report <ul style="list-style-type: none"> Our approach to climate change: Metrics and targets, pages 87 to 92. Streamlined Energy and Carbon Report (SECR), pages 93 to 95.	Net Zero Plan Sustainable Bond Impact Report 2022
	c) Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets.	Full	Our operational performance, pages 42 to 95.	

Our operational performance continued

Our approach to climate change continued

Governance

TCFD recommendations: disclose the organisation's governance around climate-related risks and opportunities:

- A. Describe the Board's oversight of climate-related risks and opportunities.
- B. Describe management's role in assessing and managing climate-related risks and opportunities.

Board oversight

Our Board has ultimate oversight of our consideration of climate-related risks and opportunities and scrutiny of management's identification, assessment and management of these risks and opportunities. Our principal risks statement includes climate change, and the Board reviews this annually. It considers climate-related issues when reviewing our plans, risk profile and principal risks and performance. This year the Board was updated on climate-related issues at least twice during the year, regarding our Water Resource Management Plan (WRMP) and Drainage and Wastewater Management Plan (DWMP), and climate-related Outcome Delivery Incentives (ODIs) and performance commitments.

The Board approves governance arrangements for climate-related issues, including delegating to committees specifically discussing them. This includes the Audit Committee and the ESG Committee. The Audit Committee meets quarterly to maintain oversight of our reporting, internal controls and management system, and compliance. It discussed climate change-related issues concerning our regulators views on, and assurance of our WRMP and DWMP during the year.

The ESG Committee meets quarterly to support delivery of our ambitions, performance and plans related to material ESG matters. Climate change has been one of four focus areas during the past year, and the committee has discussed climate change matters, including our net zero carbon progress, climate adaptation activities, and natural capital on four occasions.

Executive management

Executive management, and its Executive Committee have day-to-day accountability for climate-related issues. The executive is supported by an Environment Steering Group. This was established during 2022 and is sponsored by executive members. Its purpose is to facilitate an effective response and deliver solutions to environmental matters across the business. Members include cross-function representatives from across the business, including executive management, asset strategy, and catchment management. This Steering Group is supported by an Environmental Working Group.

We engage with customers and stakeholders to understand their expectations on climate-related issues. This includes discussing our plans with members of our Independent Climate and Environment Group (ICEG) established in 2022, and our Customer and Communities Challenge Group (CCCG). These Groups also provide feedback to the executive and to the Board's ESG Committee.

Our operational performance continued

Climate-related governance framework:

Board of Directors			
Board delegates certain responsibilities to its committees.			
Audit Committee	Nomination Committee	Remuneration Committee	ESG Committee
Executive Committee (ExCo)			
Day-to-day running of our company by our executives, including matters related to ESG. The executive delegates oversight of certain climate-related matters to its committees.			
Risk Committee	Performance Committee	Investment Committee	Environment Steering Group
Independent stakeholder groups			
Independent Climate and Environment Group		Customer and Communities Challenge Group	

The Investment Committee, chaired by our Chief Finance Officer, considers climate-related matters as part of its decision making. During the year carbon risks, opportunities and values were embedded into our Risk and Value business planning process.

The Risk and Value (R&V) process is designed with the intention of delivering the best value for money for Totex (total expenditure) and whole-life cost (WLC). The R&V process is six stages; checkpoints that act as technical milestones to support investment decision points within our Asset Lifecycle Process (ALP). The ALP is the sequence of stages that our assets go through during their lifetime. The forecast operational and embedded carbon emissions of a potential investment project have been embedded in the R&V project scorecard and are used to inform investment decision-making. For more see our business model, page 22.

Climate-related risks are also considered by the Executive Risk Committee, which consists of our executive and cross-function senior management representation and is chaired by our General Counsel. Each directorate maintains a risk profile, which is reviewed quarterly by the Executive Risk Committee. The committee reviews climate change risks as part of its quarterly review as part of our ERM radar.

Identified climate-related risks are incorporated in our enterprise risk profile and managed by appropriate business areas. Progress against our net zero target is reported to the Environment Steering Group and Executive Committee. Climate-related disclosures in our annual report are reviewed by the ESG Committee and require approval of the Audit Committee.

Climate-related issues are documented in several of our regulatory plans including our DWMP, WRMP and operational resilience plans. These plans are considered by the PR24 Committee, which consists of our executive and cross-function senior managers and is chaired by our Chief Financial Officer.

Senior management and employees are incentivised to deliver on our ambitions in relation to climate-related issues. Objectives are applicable to all employees including executive management and are based on a range of stretch targets, with performance-related remuneration measures focused on climate-related matters including leakage, flooding and pollution incidents. Progress against these measures is monitored by the Performance Committee.

Our operational performance continued

➔ For more information:

On how we engage with stakeholders, pages 33 to 39.

On the governance of enterprise risks, pages 120 to 132.

On the sustainability and climate-related discussions held at Board and its committees, pages 157 to 159 and 179 to 180.

On our performance targets for this year and how they relate to directors' remuneration, pages 184 to 201.

Next steps

We will review governance of climate-related matters across the business, including expanding our risk and value process to consider carbon across all the gateways of our investment decision-making process.

Strategy

TCFD Recommendations: Disclose the actual and potential impacts of climate-related risks and opportunities in the organisation's business, strategy, and financial planning, where such information is material.

A. Describe the climate-related risks and opportunities the organisation has identified over the short, medium, and long term.

B. Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning.

C. Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.

Overview of our approach

Our climate-related strategy has two approaches: mitigation aims to reduce the causes of climate change, while adaptation involves adjusting our decisions and activities to the changing climate.

Mitigating the causes of climate change: We have responded to the climate emergency by committing to reach the industry target of net zero carbon for the emissions associated with operating our services by 2030. We see this as an interim target on the path to achieving net zero emissions by 2050, aligned with the government's target. See page 89 for more on our net zero roadmap.

Adapting to a changing climate: Mitigation alone will not ensure resilience to the physical changes that will occur from the predicted future of warmer, wetter winters and hotter, drier summers. Even if the Paris Commitment goals of limiting global temperature increase to 1.5 degrees centigrade is met, we will face further changes to our climate to 2050 and beyond. We have continued to assess the resilience of our services to our changing climate, following publication in 2021 of our third risk assessment report to the Department for Environment, Food and Rural Affairs (Defra).

Read our Climate Adaptation Report at: southernwater.co.uk/our-performance/reports/climate-adaptation-consultation.

Our existing plans looking at the long-term impacts of climate change include our Resilience Action Plan, WRMP, Drought Plan, and DWMP. These plans consider a range of short and long-term time horizons. These reports are available on our website. As part of our business planning for 2025–30 we are reviewing these plans, and the underlying assessments and assumptions made.

We are working to understand how we, as a landowner, can maximise opportunities to mitigate climate change and encourage stakeholders to do likewise. Our strategic land management plan is seeking to consider the multiple potential benefits from how we use the relatively limited land we own, such as carbon sequestration, biodiversity and natural capital and ensuring the future operational resilience of services to our customers. We have also considered how our sites connect with other sites and habitats within the landscape, to enable habitats and species to better adapt to climate change.

Our operational performance continued

Our climate-related risks and opportunities

We have identified climate change as one of our principal risks and apply an ongoing, iterative process to assess and manage the range of risks and opportunities. These are typically considered as part of a broader range of factors, to understand how they interconnect and impact our business.

We consider a variety of time horizons as part of our climate-related risk assessment processes, and these broadly align with our planning horizons. See the table below, and read more on page 32.

In addition to climate change itself being identified as one of our principal risks, it also has the potential to impact several of our other key risks. Most notably these are: our ability to provide customers with access to a supply of high-quality

drinking water, now and in the future, and ensuring the capacity and resilience of our wastewater assets to effectively remove and treat wastewater.

The following tables summarise our climate-related key risks and opportunities and refers to published documents that contain more detail on our climate change processes and management plans, including risk assessments. There has been no material impact identified on the financial reporting judgments and estimates. It is expected that any impact identified through our business planning processes would materialise over a longer period of time, rather than a single year, no impact from this was identified in the current year. See page 228 in the Financial Statements for more on climate change financial considerations. For more on our approach to identify and manage risks, see pages 120 to 132.

Broad planning horizons			Time horizons of our specific plans
Short term	One to two years	Imminent risks requiring a tactical response.	Operational resilience plans: 70 years Water Resource Management Plan: 50 years
Medium term	Five years+	The five-year business planning cycle set by our regulator, Ofwat.	Drainage and Wastewater Management Plan: 25+ years Drought Plan: Five years
Long term	25 years+	Risks related to our longer-term priorities and strategy.	Pollution Incident Reduction Plan: One year

Our operational performance continued

Our approach to climate change continued

Acute and chronic physical risks and opportunities	Drivers of risks and opportunities	Potential impacts on our business	How we are managing and mitigating the risks
<p>Ability to provide customers with access to a supply of high-quality drinking water now and in the future</p>	<p>Short to medium term: Reduced water availability and higher demand due to chronic higher temperatures, with drier and hotter summers, and an increased frequency of drought.</p> <p>Medium to long term: Impacts on infrastructure and increased risks of contamination due to increase in number and severity of storms and floods.</p>	<p>Accelerated asset deterioration.</p> <p>Supply of water fails to meet demand.</p> <p>Financial penalty and reward position.</p> <p>Further investment in infrastructure and incident management.</p>	<ul style="list-style-type: none"> Comprehensive modelling and short- and long-term plans feed into our five-year asset management plans and capital investment programme: Water Resources Management Plan (WRMP) forecasts how much water we will need in the future and proposes options to make sure we have enough. Operational resilience framework and action planning to improve asset, system and service resilience and organisational capability monitoring. Drought Plan outlines the steps we would take to make sure we can maintain supplies of drinking water to customers during drought events. Water for Life Hampshire Phase 2 plan – a Strategic Resource Option (SRO) in our Western Area. Incident preparedness and management planning to provide a continuous service to customers. Target 100 water-saving customer engagement programme to encourage reductions in demand. Increasing catchment resilience by working with farmers to protect and enhance natural capital and deliver a range of ecosystem services, including improved water quality.
<p>Ability to ensure the capacity and resilience of our wastewater assets to effectively remove and treat wastewater.</p>	<p>Short to medium term: Increase in volumes of water entering the system due to increased intensity and frequency of storms.</p> <p>Drought/reduction in rainfall and temperature increase the risk of blockages and internal and external flooding.</p> <p>Long term: Increase in sea level and risk of river flooding of assets.</p>	<p>Accelerated asset deterioration.</p> <p>Financial penalty and reward position.</p> <p>Further investment in infrastructure and incident management.</p> <p>Pollution event fines or other penalties.</p>	<ul style="list-style-type: none"> Comprehensive business plans, including DWMP and operational resilience planning that feed into our business plans and capital investment programme. Drainage and Wastewater Management Plan (DWMP) assesses and plans for future investment needs across our region, 11 river basin catchments, and 61 of the highest risk of our 381 wastewater systems. Pollution Incident Reduction Plan details programme of activities to reduce pollution incidents to zero by 2040, including adapting to changing weather patterns. Incident preparedness and management planning to provide a continuous service to customers and protect the environment. Clean Rivers and Seas Task Force driving Pathfinder projects to manage surface water flooding and reduce storm overflow releases, including sustainable drainage systems SuDS and wetlands.
<p>Ability to protect and enhance natural capital across our region.</p>	<p>Medium to long term: Increased run-off and higher volumes of water, leading to pollution of rivers and seas.</p> <p>Drought/reductions in water leading to impacts on habitats and species.</p>	<p>Financial penalty and reward position.</p> <p>Pollution event fines or other penalties.</p> <p>Stakeholder expectations not met.</p> <p>Less resilient assets.</p>	<ul style="list-style-type: none"> Programme engaging with farmers and other stakeholders to improve the water sources we rely on. Ecologists within business focused on opportunities to enhance biodiversity and comply with Biodiversity Net Gain. Measuring and evaluating our natural assets by catchment to understand the state of our land and water sites and help prioritise improvements. First three baseline accounts published, Draft WRMP adaptive planning approach represented a range of future scenarios. Environmental assessment included biodiversity net gain and natural capital. Options included nature-based solutions. Our plans under the Water Industry National Environment Programme (WINEP) for water and wastewater, including increasing focus on catchment and nature-based solutions.

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Transition risks (by TCFD risk type)	Risk description	Potential impacts on business	How we are managing and mitigating the risks
Policy and Legal	Medium to long term: Changing public sentiment driving changes in regulatory targets, permits, licenses, and enforcements, leading to increased non-compliance.	Financial penalty and reward position. Increased risk of fines from non-compliance. Increased cost of carbon emissions, such as a carbon tax.	<ul style="list-style-type: none"> Strong engagement programme with regulators, MPs, and other stakeholders. Engagement with our partners and supply chain to support delivery of our ambitions. Governance framework including policies and risk management, that document accountabilities, processes and policies to aid decision making during business planning and delivery.
Technology	Medium to long term: Emerging technologies, creating operational risks including changes to skills required and operational ways of working.	Investment in new technologies, skills enhancement and new ways of working.	<ul style="list-style-type: none"> Bluewave. Our research, innovation and development lab. Engagement with our partners and supply chain to support delivery of our ambitions. Work includes pilots for the monitoring and extraction of process carbon emissions.
Market	Medium to long term: Changes in energy market and management, including cost increases, additional taxation, decarbonisation of fuel sources.	Increased costs. Increased focus on self-generation. Investment in new infrastructure.	<ul style="list-style-type: none"> Energy and fleet strategy and market, monitoring part of net zero roadmap. Engagement with our partners and supply chain to support delivery of our ambitions.
Reputation	Medium term: Changing customer sentiment on the pace and scale of ambition and solutions.	Further investment required. Investment funding challenged.	<ul style="list-style-type: none"> Strong customer insights, engagement and consultation programmes. Publishing our long-term plans including decarbonisation and adaptation, such as our WRMP.

Opportunities (by TCFD risk type)	Opportunity description	Potential impacts on business	How we are realising the opportunities
Resource efficiency	Short to medium term: Technology innovations and changes in customer sentiment supporting improvements such as water demand reductions. Leakage reduction, and circular economy e.g. water recycling.	Effect financial penalty/incentive position.	<ul style="list-style-type: none"> Target 100 commitment and programme to support customers to reduce personal daily water use to an average of 100 litres each per day by 2040. Leakage reduction programme. Identifying alternative water sources, such as water recycling projects.
Energy source	Medium to long term: A shift to low emission energy sources; technological, planning, infrastructure and policy changes.	Effect financial penalty/incentive position.	<ul style="list-style-type: none"> New framework with suppliers supporting a solar panel installation programme across some of our sites. Business planning for fleet transition to electric and other low-carbon fuels.
Products and services	Short term: Support for customers to reduce their water use. Medium to long term: Supply chain carbon reductions. Water recycling.	Effect financial penalty/incentive position.	<ul style="list-style-type: none"> Target 100 commitment and programme. Customer meter installation programme.
Markets	Medium term: Escalation in sustainable bonds and other financial instruments.	Effect financial penalty/incentive position.	<ul style="list-style-type: none"> Sustainable Finance Framework.
Resilience	Medium to long term: Ensure ongoing security of water supply. Enhancing asset resilience.	Effect financial penalty/incentive position.	<ul style="list-style-type: none"> Operational Resilience assessments and planning. Adaptive pathways for business planning.

Our operational performance continued

Our approach to **climate change** continued

How climate risks inform our business planning

Being resilient to the changing climate is critical for us to deliver services to customers. So, it is vital we understand the risks, so we can plan and adapt to the future. Responding to climate-related issues is embedded in our vision, policies, and long-term business plans. We are also working to better embed these issues in our investment decision-making processes.

Earlier in 2022 we published our Long-Term Priorities, consulting on our plans for providing water and wastewater services, and what our priorities should be in the medium term. The document presented our views on key trends and resulting challenges, as well as opportunities that will influence the future and our priorities in response, which will guide our future business planning and strategy. We are developing our priorities and plans, learning from the consultation feedback and the results of our adaptive planning and scenario assessments. This will inform our business plan for the period 2025–30.

Our Long-Term Priorities (published June 2022)

Our long-term strategy and business planning is informed by regular studies which consider longer-term horizons and external trends and challenges. Our Water Resource Management Plan (WRMP) has now been refined and submitted for further consultation. Our updated WRMP will be published later in 2023, and we will outline any key changes to our plans in our Annual Report for 2023–24.

We have assessed a range of climate scenarios to look at the impacts on water supply, specifically examining rainfall and evapotranspiration, and incorporated this into our planning. Our assessment approach aligns with that followed by all Water Resources South East companies and modelling includes use of UK Climate Projections 2018 (UKCP18) climate scenarios that are based on the on the Intergovernmental Panel on Climate Change (IPCC) Representative Concentration Pathway (RCP) climate scenarios, specifically RCP8.5 (the highest baseline emissions scenario) and RCP2.6 (the lowest baseline emissions scenario).

Trends



Challenges



Our operational performance continued

We also published our Drainage and Wastewater Management Plan (DWMP) in May 2023, and will report further on how this plan is progressing in our annual report for 2023–24.

Our approach to assessing the impacts is set out by Water UK guidance, which includes IPPC RCP climate scenario RCP8.5 and RCP2.6. Modelling focused on the impacts related to flooding, storm overflows and on wastewater assets such as risk of sewer collapse or rising main bursts.

Our plans to ensure operational resilience also consider climate change impact scenarios. These plans build on the qualitative adaptation risk assessment undertaken in 2021 and have assessed

the susceptibility of around 18,000 of our operational assets to the potential impacts of climate change.

The review considered the latest UK Climate Predictions, in UKCP18, to assess vulnerability to six shocks and stresses: flooding risk, coastal erosion, heat, subsidence, saline intrusion and risks to natural capital. We are now finalising our mitigation plans for a refined list of sites that will be included in our business plan for 2025–30.

Note 2 of the Notes to Financial Statements includes critical accounting judgments related to climate change in the context of the assessments described here. See page 228.

➔ For more information:

On our decarbonisation transition plan, visit:
southernwater.co.uk/our-story/our-plans/net-zero-plan.

On our third-round climate adaptation report, published in 2021, visit:
southernwater.co.uk/media/8259/5670_climatechangeadaptation_2021_v13.pdf.

On our longer-term trends, challenges and priorities, visit:
southernwater.co.uk/media/7224/5951_long-term_strategic_plan_v12.pdf.

On our plans to secure water out to 2075, visit:
southernwater.co.uk/our-story/water-resources-management-plan.

On our plans to secure a resilient drainage and wastewater system, visit:
southernwater.co.uk/dwmp.

Next steps

We will share further details on our climate-related scenario assessments through the publication of our business plans in October 2023. We will continue to evolve our understanding and reporting of how specific climate-related issues potentially arise over specific time horizons, and how we determine which risks and opportunities could have material financial impact.

We will further develop our long-term decarbonisation plan, including gaining a better understanding of our Scope 3 emissions and embodied carbon, to enable us to produce a more accurate and complete picture of our entire footprint. This insight will help us engage with our supply chain to identify opportunities to reduce emissions. Finally, we will work to expand embedment of carbon impact considerations across all investment decision making.

Our operational performance continued

Our approach to **climate change** continued

Risk management

TCFD Recommendations: Disclose how the organisation identifies, assesses, and manages climate-related risks.

- A. Describe the organisation's processes for identifying and assessing climate-related risks.
- B. Describe the organisation's processes for managing climate-related risks.
- C. Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation's overall risk management.

We operate an Enterprise Risk Management (ERM) process that is a core component of our governance and internal control framework. It supports us to make better decisions through an improved understanding of risk across the business. Our risk management framework is the totality of systems, structures, policies, processes and people that identify, measure, monitor, report and control or mitigate internal and external sources of risk, for all risks including climate-related risks.

Climate change is identified as one of our 12 principal risks. These are treated with equal weighting. Our risk appetite defines the risks and opportunities we are willing to accept for identified categories. Seven risk components are identified for the principal risk of climate change, with the risk appetite set at 'moderate' for all. Principal risks are monitored by the Executive Risk Committee, reporting to the Audit Committee and ultimately the Board.

We identify, assess, and agree control options for climate-related risks across the business. The ERM process requires identification of the significant risks to the business, and classification of them using a scale of low to major impact. The criteria defined in our risk profile are:

- Business disruption/customer experience
- Brand and reputation/legal and regulatory
- People/health, safety, environmental and security
- Financial – within year and lifetime.

We disclose climate-related risks and management arrangements in our five-year business plan and produce business-specific risks assessments and management plans that are often regulatory

documents. These include our Water Resources WRMP, DWMP, Drought Plan, Climate Adaptation Report and operational resilience plans.

Our draft WRMP 2024 sets out how we plan to maintain a high-quality and reliable supply of water for customers and improve the water environment.

Long-term planning requires making decisions for an uncertain future. To manage uncertainty, we have used an adaptive planning approach. We have looked at multiple supply-demand balance scenarios in view of the uncertainties associated with growth forecasts, the level of reductions required in the water we take from the environment and climate change impacts.

We are also working on our first DWMP that sets out how we will make sure our drainage and wastewater systems resilient over the next 25 years. One of the key challenges the plan addresses is climate change.

We conducted a review of the operational resilience of our sites, including an assessment of the impact of climate-related risks, as part of our business planning for 2025–30. Six shocks and stresses were considered: flooding; asset heat stress; subsidence; coastal erosion; water source salination; and resource availability (natural capital). The assessed scenario conditions included a representative concentration pathway 'RCP8.5' as an 'adverse' scenario for subsidence, saline intrusion, and heat stress and 'RCP2.6' as a 'benign' scenario for coastal flooding.

The work categorised sites into either: further work required to enhance resilience; sites where further investigations were required; or sites for which no further enhancement was required. Work continues to create a list of priorities for 2025–30.

Our operational performance continued

➔ For more information:

On our ERM approach, see Risks – pages 120 to 132.

On our plans to secure water out to 2075, visit:
southernwater.co.uk/our-story/water-resources-management-plan.

On our plans to secure a resilient drainage and wastewater system, visit:
southernwater.co.uk/dwmp.

On our plans to maintain a secure water supply and protect the environment during dry weather and drought, visit:
southernwater.co.uk/our-story/water-resources-management-plan/our-drought-plan.

On our third-round climate adaptation report, published in 2021, visit:
southernwater.co.uk/media/8259/5670_climatechangeadaptation_2021_v13.pdf.

Next steps

We continually assess how climate-related risks impact our enterprise risk profile, as we build on our understanding, including those under different scenarios. We are embedding climate change, specifically mitigation, into our assessment of suppliers for our business plan period 2025–30.

Our operational performance continued

Our approach to climate change continued

Metrics and targets

TCFD Recommendations: Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.

A. Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process.

B. Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.

C. Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets.

We measure our climate-related performance using a range of metrics and targets, and report on these in our Annual Report and Annual Performance Report. These metrics focus on our key risks related to water supply, wastewater removal, and natural capital. We also report on our carbon emissions, in alignment with regulatory requirements, and to report progress on our decarbonisation target.

The following tables summarise the key metrics we use. This includes reporting on our alignment with the suggested metrics in the TCFD cross-industry guidance. Further information on our performance can be found on pages 42 to 95 and in our Annual Performance Report.

TCFD's cross-industry metric categories

Metric category (defined in TCFD guidance)	Metrics		Notes
GHG emissions Absolute Scope 1, Scope 2, and Scope 3; emissions intensity	MT of CO ₂ e	See data tables in the Streamlined Energy and Carbon Reporting section, pages 93 to 95.	We disclose Scope 1 and 2 emissions, a proportion of our Scope 3 emissions, and emissions intensity figures.
Transition risks Amount and extent of assets or business activities vulnerable to transition risks	N/A	Not available	We do not consider a quantitative metric. We will consider the suitability of such and report on our conclusions in 2024.
Physical risks Amount and extent of assets or business activities vulnerable to physical risks	N/A	Not available	We are finalising our latest modelling and assessments for operational resilience, WRMP and DWMP. We will report findings next year.
Climate-related opportunities Proportion of revenue, assets, or other business activities aligned with climate-related opportunities	N/A	Not available	We do not consider a quantitative metric. We will consider the suitability of such and report on our conclusions in 2024.
Capital deployment Amount of capital expenditure, financing or investment deployed toward climate-related risks and opportunities	N/A	Not available	We do not calculate this metric currently. We will consider the suitability and a methodology for such and report on our conclusions in 2024.
Internal carbon prices Price on each tonne of GHG emissions used internally by an organisation	N/A	Not available	We do not apply an internal carbon price (notional or actual) currently. We are monitoring use of such and consider its suitability.
Remuneration Proportion of executive management remuneration linked to climate considerations	The following 2022–23 metrics are examples of those key to our climate change resilience and are measures included in our Annual Bonus Plan (for our executive and all employees): Internal sewer flooding incidents and Leakage.		For more detail see Directors' Remuneration Report, pages 184 to 201.

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Other climate-related risk metrics and targets

Metric category	Metrics and performance	
Targets set by our regulator Ofwat (as performance commitments for 2020–25)		
Leakage	Leakage – MI/d	See pages 42 to 95. For further details on our regulated metrics and targets see our Annual Performance Report.
Water consumption	Per capita consumption – l/p/d	
Internal sewer flooding	Number of incidents per 10,000 sewer connections	
Pollution	Number of incidents per 10,000km of sewer	
Water resource abstraction	Distribution input – MI/d	
	Abstraction incentive mechanism – MI/d	
	Effluent re-use – m ³	
Renewable generation	% energy generated from renewable source	
Asset health	Unplanned water outage – %	
	Risk of sewer flooding in a storm – %	
	Number of sewer collapses per 1,000 kilometres of all sewers	
Natural capital	Number of river catchments with natural capital accounts	
Net zero transition plan target and pledges		
Operational net zero carbon by 2030	tCO ₂ e	See Our Net Zero Transition Plan below
Energy used in the reporting period	MWh	We report absolute energy use, energy by source and intensity. See the data tables in the Streamlined Energy and Carbon Reporting (SECR) section, pages 93 to 95.
100% renewable-backed power from April 2021	% electricity from fully accredited renewable source	100% since April 2021.
Generate 24% of own renewable energy by 2025	% energy generated by on-site renewables	13.30%
Fleet electrified or low carbon fuels by 2030	% of fleet	0%. A study has started with UK Power Networks to develop our fleet electrification roadmap.
Aim for nature-based solutions and work in partnership	Not applicable	We have embedded nature in our risk and value investment process and are working in partnership to deliver solutions.

Our operational performance continued

Our approach to climate change continued

For each of our regulated metrics described above a target is set for the business plan period (2020–25). Information on these targets and our performance is described in the pages referenced in the metrics tables above, and in more detail in our Annual Performance Report.

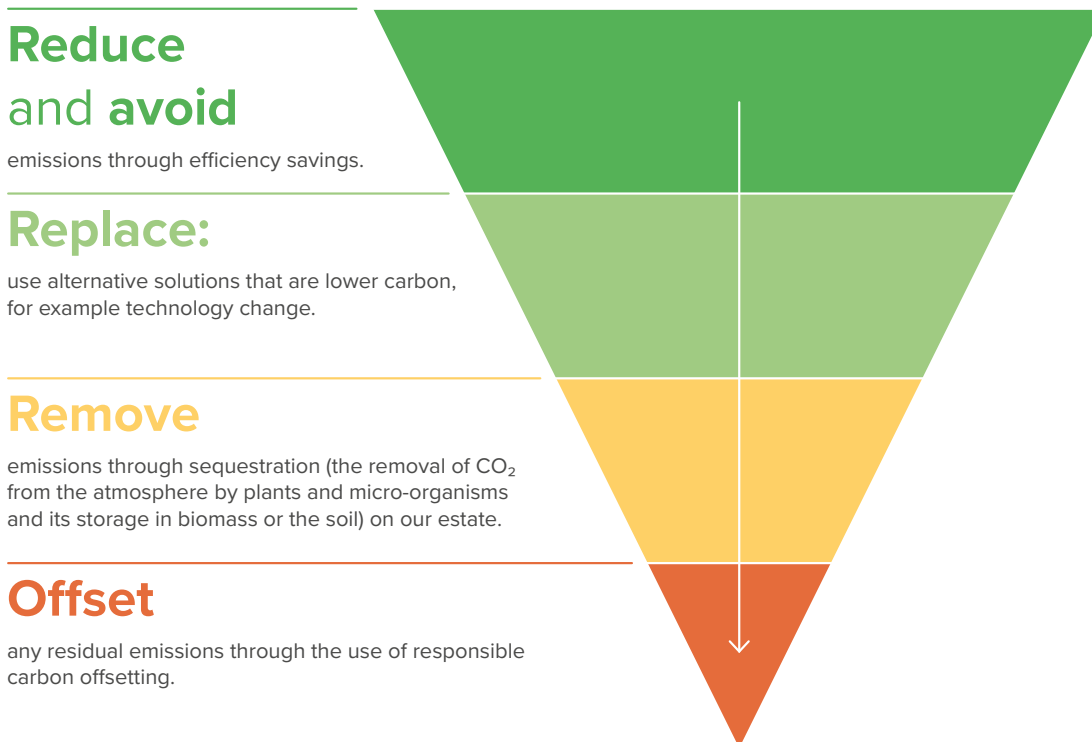
Our greenhouse gas emissions and associated energy use data is available in the Streamlined Energy and Carbon Reporting (SECR) on pages 93 to 95.

This year we implemented a process to expand the scope of our measured Scope 3 emissions to include our construction and refurbishment projects. We also completed a project to review the wider Scope 3 emissions from our value chain and investigated how our plans and targets align

to a 1.5 degrees centigrade pathway. We are planning how these findings are integrated in our longer-term decarbonisation roadmap, and ongoing carbon emission disclosures.

Our Net Zero Transition Plan

We published a Net Zero Plan in 2021, confirming our commitment to the Water UK Public Interest Commitment to net zero operational emissions by 2030. We see this as an interim target in our long-term strategy to reach net zero by 2050. We recognise the important role we, and the water sector must play in reducing emissions while balancing this with the need to provide our services at an affordable price to our customers. Our decarbonisation approach remains to follow the carbon hierarchy:



Our operational performance continued

Forecasts against our 2030 commitment indicate that our plans to 2030 will mean we cannot achieve net zero without the use of offsets for residual emissions.

We face significant challenges to deliver our net zero 2030 commitment; these challenges are both in terms of feasibility and deployment. We believe best value to our customers will not be served by purchasing external offsets and our strategy is not to purchase these on the external market. As an alternative we are continuing to explore how we could support over the medium- to long-term carbon sequestration through our strategic land management plan and work to employ nature-based solutions. We are working with the wider water sector to understand the range and scale of carbon offsetting opportunities.

Our Executive team remains committed to decarbonisation over the long term and has tasked our teams to extend the horizon of our net zero planning from 2030 to 2050. We will better align our net zero transition planning with our long-term delivery strategy and look beyond solely operational emissions. This means we will align our plans with the government's 2050 net zero target and regulator Ofwat's direction to focus on location-based Scopes 1, 2 and 3 emissions.

Our operational performance continued

Our approach to climate change continued

Our operational carbon emissions

In 2023 we expanded the scope of operational emissions we are able to report; the sources of operational emissions are listed below. In 2023 our reported net market-based operational emissions were 109.5 kilotonnes of CO₂e (2023 like-for-like emissions with 2022: 72.9 kilotonnes CO₂e) (2022: 81.6 kilotonnes CO₂e). Our net location-based emissions for 2023 were 215.2 kilotonnes of CO₂e (2023 like-for-like emissions with 2022: 157.7 kilotonnes CO₂e) (2022: 161.2 kilotonnes CO₂e).

Scope 1 emissions:

- Direct emissions from burning of fossil fuels (including CHP generated onsite)
- Process and fugitive emissions
- Transport: Company owned or leased vehicles

Scope 2 emissions:

- Electricity use: For the location-based approach this is the average grid emission factor for power from the electricity grid.
- Electricity use: For the market-based approach this uses the carbon intensity of the energy we procure from the electricity grid.

Scope 3 emissions:

- Transmission and distribution losses from the supply of total grid electricity we use
- Business travel on public transport and private vehicles used for company business
- Outsourced activities (not included in Scope 1 or 2)
- Purchased electricity; extraction, production, transmission and distribution (so-called “well to tank” emissions) (for the location based approach only) (*first reported in 2023).
- Purchased fuels; extraction, production, transmission and distribution so-called “fuels well to tank” emissions) (*first reported in 2023).
- Chemicals purchased (*first reported in 2023).
- Waste disposal (*first reported in 2023).

➔ For details on our emissions footprint see pages 94 to 95.

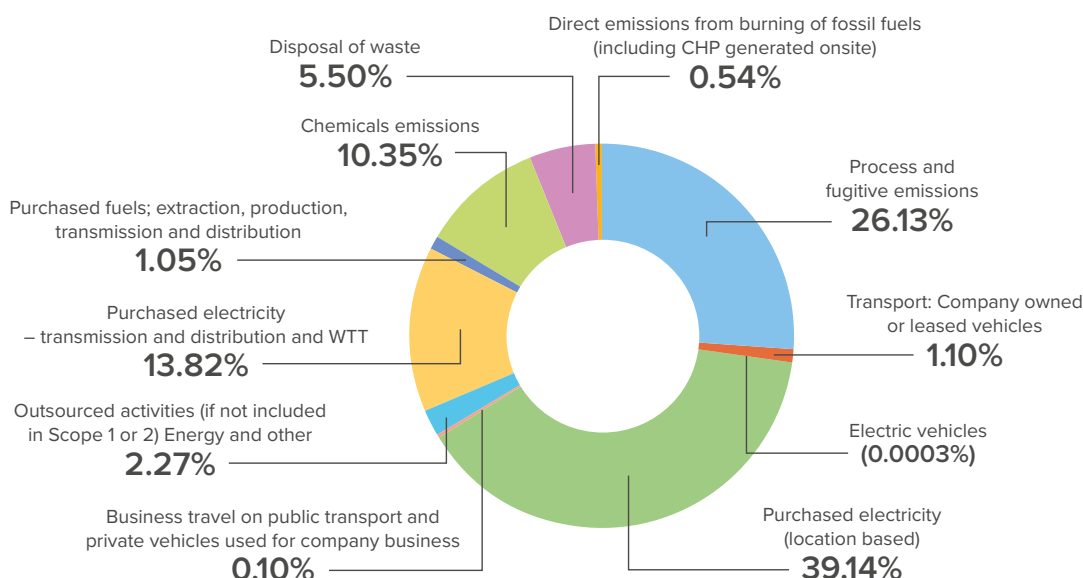
Energy use is the largest source of our reported emissions at 56.8% (location-based approach).

In 2023 Southern Water used 574,493 MWh of energy for water and wastewater operations, an increase on 2022. Wastewater is the largest user of energy, accounting for 67% of consumption. Most of this energy is used to power our pumps and blowers.

We also generated 51,095 MWh of energy in wastewater via our CHP engines, which offsets 16% of our wastewater consumption and prevents the need for this energy to be imported. Water supply accounts for the remainder of the energy needed to power our operations, with solar generation totalling 2,943 MWh, helping to ease the need for imported energy at our supply works. We currently generate 11% of our electricity from renewable sources. For details on our energy use see page 93.

Our operational performance continued

Sources of our operational carbon emissions



Process emissions:

Emissions from water and wastewater treatment formed 26.1% of our 2022–23 operational emissions. Process emissions occur primarily from our sewage and sludge treatment processes producing methane and nitrous dioxide emissions. These emissions have a significantly higher Global Warming Potential than carbon dioxide emissions.

These emissions are the biggest challenge for us and the water sector. We are working in partnership to fully understand the scale of the problem, and identify and test measurement, mitigation, and abatement solutions. Our bioresource management plans are focused on efficiencies and opportunities

to upgrade our infrastructure, based on impact, cost, policy constraints and the availability of deployable solutions.

Energy emissions:

Emissions from our use of energy formed 56.8% of our 2022–23 operational emissions. Most of our energy used is electricity, but we also use gas for heating, diesel for generators and gas oil in our anaerobic digestors. While the electricity grid is decarbonising, we continue to review options to change the source of our energy; we have sourced 100% of electricity from a renewable-backed source and invested in renewable on-site electricity by installing solar panels. We continue to explore other low-carbon sources of energy,

either on site or in partnership such as via a Power Purchase Agreement. We are also focused on energy efficiency.

Transport emissions:

Emissions from the use of fuel to power vehicles used for business activities formed 1.2% of our 2022–23 operational emissions. We are working to transform our LGV fleet to electric over the medium term and exploring how we convert our HGV fleet to no or low forms of carbon, such as hydrogen and biogas, in the medium to long term.

We have also launched an employee car benefit scheme for electric and plug-in hybrid cars.

➔ For more information:

On our regulatory Streamlined Energy and Carbon Report, pages 93 to 95.

On our climate-related regulatory targets, visit: southernwater.co.uk/our-performance/reports/annual-reporting.

On our original 2030 net zero plan visit: southernwater.co.uk/our-story/our-plans/net-zero-plan.

On our sustainable bonds performance: southernwater.co.uk/our-story/our-plans/investors.

Next steps

We will develop our transition planning, including the reset of our decarbonisation roadmap out to 2050, and the conclusion of adaptive pathways work as part of our business planning for 2025–30. Our decarbonisation roadmap will be underpinned by four principles: further embedding a culture for decarbonisation; industry collaboration; innovation and research and development; and an adaptive approach. We will work on supporting strategies for energy and non-regulated funding.

Streamlined Energy and Carbon Report (SECR)

This section fulfils the requirements of the Companies (Directors Report) and Limited Liability Partnerships (Energy and Carbon Report) Regulations 2019.

Further information about our climate change activities can be found on pages 75 to 92 of this Annual Report.

Targets

To mitigate the company's climate impact, it is committed to delivering net zero by 2050, and is reviewing its interim target for net zero operational greenhouse gas (GHG) emissions, including engagement with the sector on its 2030 public interest commitment.

Energy efficiency action

Energy use is a significant source of GHG emissions, and we have continued to invest heavily in energy efficiency throughout 2022–23, in multiple areas, covering multiple technologies.

- Over £1 million investment in aeration systems to improve the efficiency of treated water process.
- Invested in real-time control, which allows us to trend our water treatment, resulting in reduced energy demands at several water treatment sites.
- Replaced pumping systems at multiple sites with new efficient pump sets.

- We have also invested in real-time control, which allows us to trend our water treatment, resulting in reduced energy demands at water treatment sites.

Quantification and reporting methodology

The methodology used to calculate operational greenhouse gas emissions for the provision of water and wastewater services follows the GHG Protocol – Corporate Reporting Standard.

The water sector employs a bespoke carbon accounting workbook, which reflects best practice and is updated every year to use the latest emission factors, derived from the UK's GHG Conversion Factors. Version 17_V4.02 of the Carbon Accounting Workbook (May 2023) has been used to prepare the GHG estimations.

Operational boundary

The reporting boundary covers all the company's operational services and aligns with our financial reporting boundary.

Assurance statement

This quantification of greenhouse gas emissions and energy usage is checked internally through a governance framework and audited by independent consultants in accordance with AA1000 v3 as part of the company's annual regulatory reporting.

Energy use

Area	2022–23 kWh	2021–22 kWh
Electricity	486,491,717	458,402,906
Imported	432,453,458	396,418,121
Self-generated	54,038,259	61,984,786
Gas	2,364,641	2,871,346
Business transport	15,303,066	13,447,058
Total incl. self-generation	504,159,424	474,721,310
Total excl. self-generation	450,121,165	412,736,525

The company's self-generated supply comes from combined heat and power (CHP), solar PV and diesel generation. In addition, the company exported excess electricity to the grid, predominantly renewable energy from the company's 16 CHP installations.

Streamlined Energy and Carbon Report (SECR)

continued

Greenhouse gas emissions

Scope	Description	Included in Scope	2022–23 (ktCO ₂ e)	2021–22 (ktCO ₂ e)
1	Direct emissions from activities that the company own or control including combustion of fuel	Gas oil use, process emissions, company transport	60.1	63.5
2	Indirect emissions from purchase of electricity (location-based)	Grid electricity	84.7	84.5
	Indirect emissions from purchase of electricity (market-based)	Grid electricity	0.0	0.0
3	Other indirect emissions*	Business travel on public transport/private vehicles, outsourced activities, grid electricity transmission and distribution, purchased chemicals, waste disposal, purchased fuels: extraction, production, transmission and distribution, embedded emissions, and purchased goods and services.	300.5	18.0
Total gross emissions (Scopes 1 & 2)	Location-based approach**		144.8	148.1
	Market-based approach***		60.1	63.5

* In 2023 we expanded reporting of Scope 3 emissions to include the following activities: purchase of chemicals, waste disposal, purchased fuels: extraction, production, transmission and distribution, embedded emissions, and purchased goods and services. This accounts for the reported increase in Scope 3 emissions (on a like for like basis, compared to 2022, our emissions were 12.8ktCO₂e).

** Location-based approach uses the average grid emission factor for power from the electricity grid.

*** Market-based approach uses the carbon intensity of the energy we procure from the electricity grid.

Streamlined Energy and Carbon Report (SECR)

continued

Global greenhouse gas emissions and energy intensity metrics

Area	Unit of measurement	2022–23	2021–22
All company (location-based approach)	Tonnes of CO ₂ e from Scope 1 and 2 gross emissions per £100,000 turnover	18.28	18.0
All company (market-based approach)	Tonnes of CO ₂ e from Scope 1 and 2 gross emissions per £100,000 turnover	7.59	7.7
All company energy (incl. self-generation)	kWh/ £100,000 of turnover	63,616	57,647
All company energy (excl. self-generation)	kWh/ £100,000 of turnover	56,798	50,120
Water services	kgCO ₂ e per megalitre (MI) of water treated (location-based approach)	158	130
Water services	kgCO ₂ e per megalitre (MI) of water treated (market-based approach)	14	18
Water services (electricity incl. self-generation)	kWh/MI	769	537
Water services (electricity excl. self-generation)	kWh/MI	755	529
Water services (total energy incl. self-generation)	kWh/MI	798	558
Water services (total energy excl. self-generation)	kWh/MI	784	549
Wastewater services	kgCO ₂ e per megalitre (MI) of wastewater treated (location-based approach)	253	245
Wastewater services	kgCO ₂ e per megalitre (MI) of wastewater treated (market-based approach)	139	137
Wastewater services (electricity including self-generation)	kWh/MI	715	662
Wastewater services (electricity excluding self-generation)	kWh/MI	603	534
Wastewater services (total energy including self-generation)	kWh/MI	741	685
Wastewater services (total energy excluding self-generation)	kWh/MI	629	557

Note: Turnover 2022–23 reported as £792.5 million for use in intensity metrics. This reflects a reduction of £23.2 million due to an Ofwat regulatory settlement.