



Delivering what matters

ACT

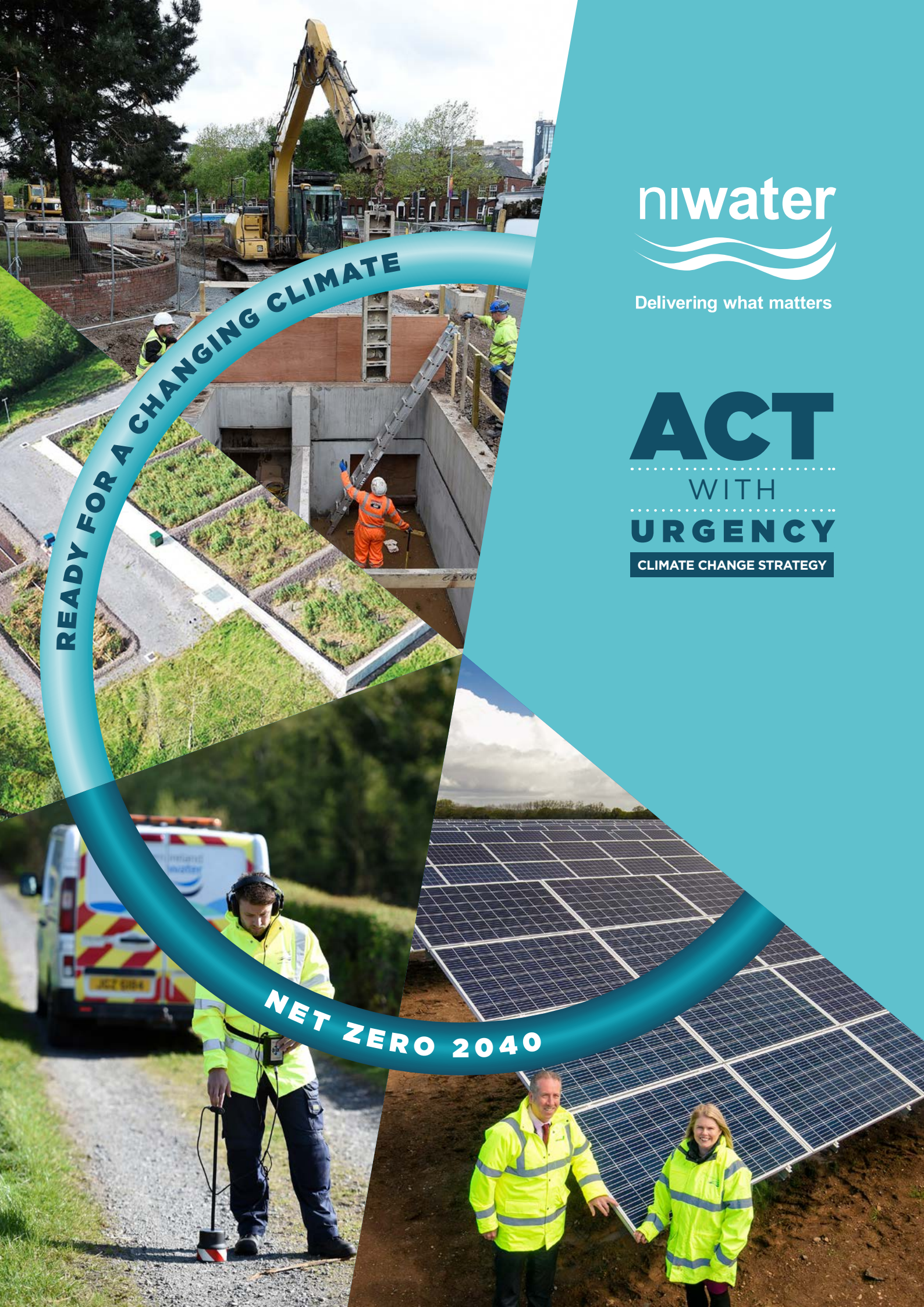
WITH

URGENCY

CLIMATE CHANGE STRATEGY

READY FOR A CHANGING CLIMATE

NET ZERO 2040



WELCOME



P7 St Patrick's Primary School Mayobridge, Fofanny area, climate competition winning poster depicting potential solutions to reaching net zero.



We are facing a climate emergency and now more than ever we need to take action. In this strategy we set out what we can do to help address the unprecedented threat that the climate crisis poses.

NI Water Chair and CEO visiting a sustainable catchment management project for the Mourne Wall, County Down.

NI Water is transitioning to a zero carbon business that is ready to deal with climate change. In doing so we can play a strategically important role in building the green economy and restoring biodiversity.

Climate change is a systemic problem for Northern Ireland and requires systemic solutions. We are committed to collaborating with all our stakeholders to make these urgent changes to deliver infrastructure fit for the climate challenges in the 21st century.

At NI Water, we're committed to delivering a net zero, climate resilient future for all our customers. Climate change is of particular importance to the water sector given the impact on the quality and quantity of water sources, the carbon intensity of our sector's supply chain, and the exposure of our assets to extreme weather events.

We have challenged ourselves to go further and faster than the already stretching net zero targets set in law. As an operator of a piece of critical national infrastructure, we must be ready for climate change.

We know the challenge ahead of us and what we must do. Now is the time to act with urgency.

#NIWactwithurgency

Dr Leonard J. P. O'Hagan CBE DL
Chair of the Board
28 March 2023

Sara Venning
Chief Executive
28 March 2023



This Climate Change Strategy relates to the Sustainable Development Goal on Climate Action.

>>FAST READ

CLIMATE EMERGENCY

Transitioning to a zero carbon, climate resilient economy is a long-term aspiration, but we need to act with urgency and prioritise delivery now. We are in a climate emergency, a global energy cost crisis, and facing economic uncertainty. The need to act becomes more pressing with each day that passes.

Addressing climate change is critical to the water sector given the impact on the quality and quantity of water sources, the carbon intensity of our sector's supply chain, and the exposure of our assets to extreme weather events. We will mitigate emissions from our activities, reduce emissions where we can from our construction and the wider supply chain, and adapt our assets to extreme weather events.

Like all businesses and households, NI Water is experiencing inflationary pressures across its supply chain, particularly in energy costs. As the largest user of electricity in Northern Ireland, we have seen unprecedented increases in the costs of electricity we buy. Climate action is vital to deal with the dual challenge we face from the climate emergency and the energy cost crisis.

CLIMATE ACTION AT NI WATER

At NI Water, we're committed to delivering a net zero, climate resilient future for all our customers.

We have challenged ourselves to go further and faster than the net zero 2050 targets set in law.

NI Water is committing to achieve net zero for the energy we use by 2030 and net zero for all our emissions by 2040, as measured against our 2020/21 adjusted baseline.

As an operator of critical national infrastructure, we must be ready for climate change.

We are moving our business to a higher state of readiness by planning for two degrees of temperature rise by 2050 and preparing for four degrees by 2090.

We are determined to harness the huge and largely unseen potential for NI Water to address climate change. Several of the approaches we are taking will benefit our society and economy more broadly as it seeks to decarbonise and exploit the benefits of green growth¹ through a just transition.

ACTING WITH URGENCY

Today all the answers do not exist. We will be bold and innovative in finding affordable solutions. Yet we can't do this on our own. Climate change is a systemic problem for Northern Ireland and requires systemic solutions. And we need holistic solutions that also address the changes of the global energy crisis and growing pressures on public sector funding that we experience as a government owned company.

We will continue to collaborate across government and with the Utility Regulator to find the most cost-effective way to invest in our services, which supports those who can least afford to pay, places fairness across generations at the heart of our approach while restoring our natural environment.

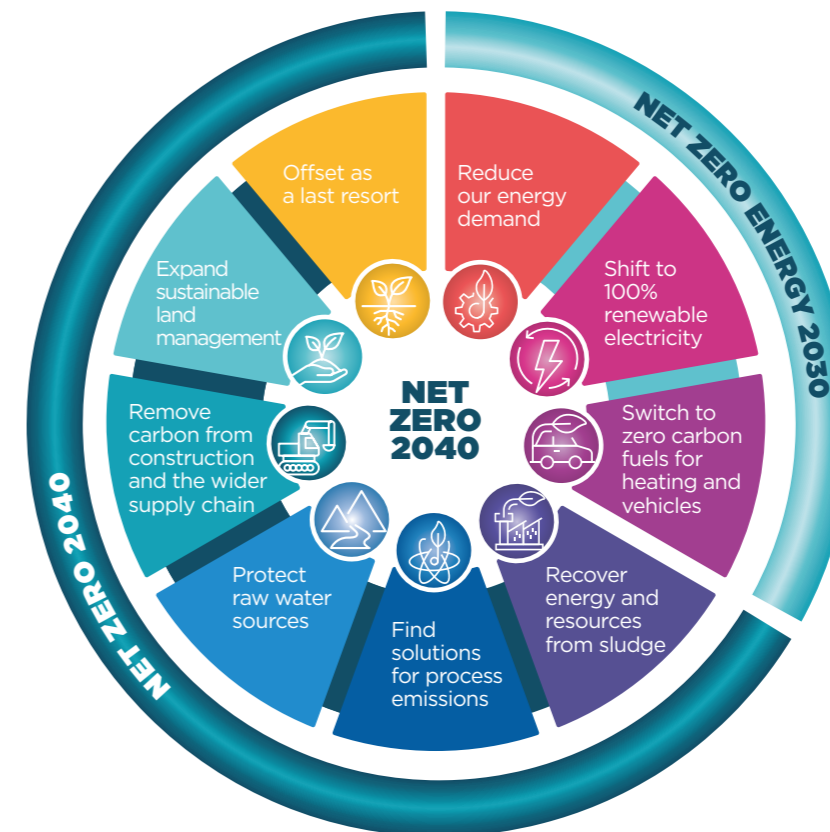
Our Climate Change Strategy lays the foundations to help us reach our climate change commitments under future Price Controls. While our spending to 2027 has largely been set, we are finding ways to decarbonise our business now which will enable us to make deeper emissions reductions at the next Price Control - PC27 (2027-33). This Climate Change Strategy will help us prepare our future business plans where we will have to make new climate investments, some of which we will only be able to anticipate once we are further along our journey.

Our Climate Change Strategy will be refreshed in advance of each subsequent regulatory Price Control to ensure that it reflects the latest climate data and best practice.

We know the challenge ahead of us and what we must do. Now is the time to act with urgency.

#NIWactwithurgency

>>FAST READ



¹ <https://www.daera-ni.gov.uk/articles/green-growth-strategy-northern-ireland-balancing-our-climate-environment-and-economy>

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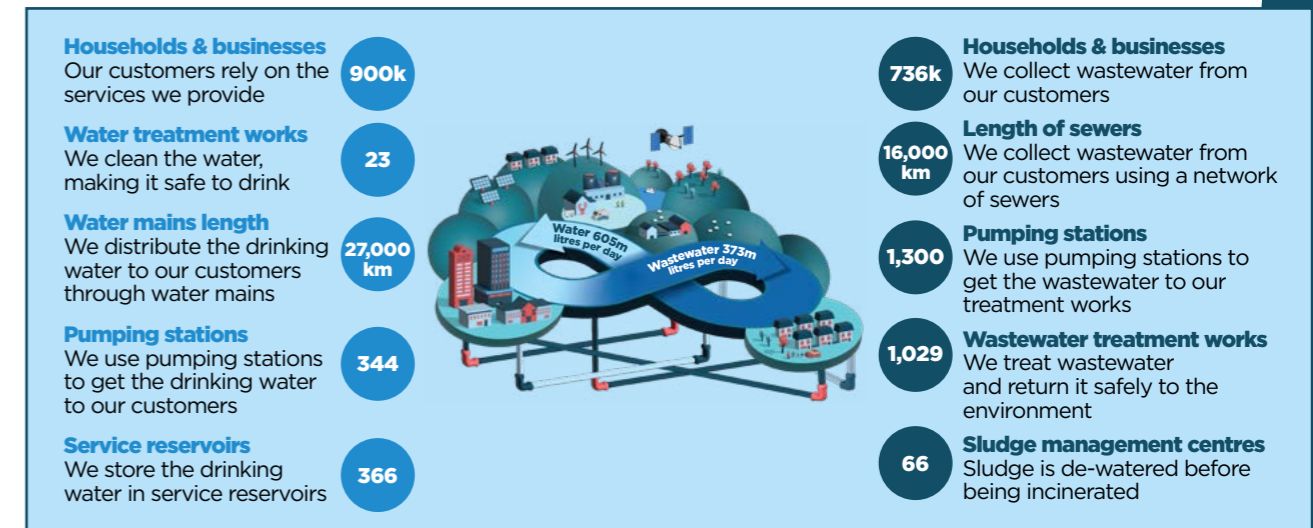
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ABOUT NI WATER AND OUR CLIMATE CHANGE STRATEGY

WATER UNDERPINS A PROSPEROUS SOCIETY

Largely unseen, our infrastructure underpins every aspect of life in Northern Ireland. It is the foundation for public health, it can unlock economic growth and help restore the natural environment.

It costs around £680m each year to deliver water services in Northern Ireland. Thousands of assets at a value of around £3bn, are operated and maintained to provide these services. This includes over 40,000km of water mains and sewers - one and a half times longer than Northern Ireland's entire road network and long enough to circle planet earth.



CLIMATE ACTION AT NI WATER

Focusing on climate action is not new for NI Water. Since our formation in 2007, we have made significant improvements in water resilience for customers, delivering high levels of leakage detection, sustained investment in water mains and water efficiency initiatives. We have been developing water resource plans² for many years and have been partners in the Living With Water Programme to improve strategic drainage infrastructure from 2014. Since 2015, we have reduced our reported emissions by well over 50%, in part through the purchase and deployment of renewable energy, such as our solar farm at Dunore water treatment works near Antrim.

Our Power of Water report³ was launched in 2021 and highlights the opportunity that we have in Northern Ireland to use the publicly owned assets that we manage to deliver action to support a green economy. Several of the climate change actions we are taking will further help to unlock these benefits.

CLIMATE SITS AT THE HEART OF OUR CORPORATE STRATEGY (2021-46)

Our Corporate Strategy sets the overall strategic direction on climate action in the medium term across PC21 (2021-27) and over the longer term. Getting to net zero for emissions and ensuring we are resilient to climate change are essential elements of the five strategic priorities (customer, economy, water, nature and people) in our Corporate Strategy.

THE NEED FOR A CLIMATE CHANGE STRATEGY

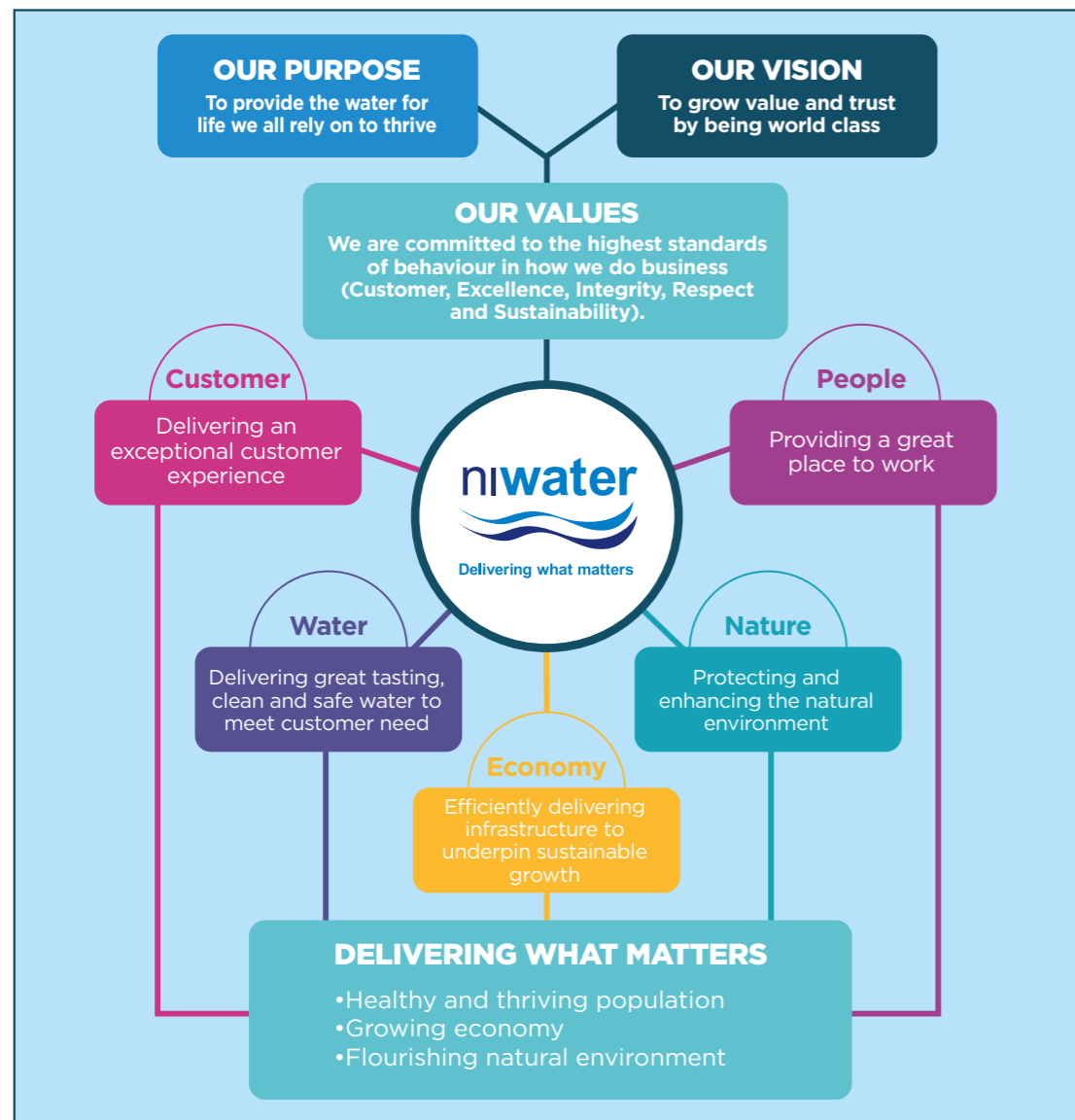
We recognised the need to outline our approach to climate change to support the delivery of Our Corporate Strategy. In 2021 we commissioned an independent review to identify, coordinate, and prioritise actions on net zero and climate resilience, and align with the recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD⁴). These actions form the foundations of this Climate Change Strategy.

²<https://www.niwater.com/managing-northern-irelands-water-resources/>

³<https://www.niwater.com/climatechange/power-of-water/>

⁴TCFD is a mandatory climate reporting framework required under Companies Legislation and compliance is effective for NI Water from 2023/24.

ABOUT NI WATER AND OUR CLIMATE CHANGE STRATEGY



EMBRACING GOVERNMENT CLIMATE LEGISLATION, POLICY AND STRATEGY

We share the Government’s vision for infrastructure that enables everyone to lead a healthy, productive, and fulfilling life; and which supports sustainable economic development and protects our environment.

In February 2020, the Northern Ireland Assembly declared a climate emergency. The Climate Change (NI) Act 2022 was enacted in June 2022 and sets legally binding targets for net zero emissions by 2050, in line with the UK Government’s net zero target, and will

result in sectoral targets overseen by an independent Climate Commissioner. The legislation also introduces requirements for public bodies to report on net zero and climate resilience.

Our Climate Change Strategy supports delivery of the Climate Change Act and complements the Department of Agriculture, Environment and Rural Affairs (DAERA) overarching, multi-decade Green Growth Strategy. We have developed our approach to align with NI’s Energy Strategy, the Environment Strategy, and Infrastructure 2050, which together will contribute to achieving the legislated target of net zero 2050.

ABOUT NI WATER AND OUR CLIMATE CHANGE STRATEGY

BUILDING A NET ZERO AND CLIMATE RESILIENT BUSINESS

Our Climate Change Strategy sets out our approach to building a net zero and climate resilient business. The Strategy sets out:

- our pathway to net zero emissions for the energy we use by 2030;
- how we will achieve net zero for all our emissions by 2040; and
- what we will do to ensure resilience of our services to climate change by 2050 and by 2090.

The timing of our targets and actions for net zero and climate resilience has been informed by our risk scenario modelling.

TAKING AN INTEGRATED APPROACH

Our approach to net zero and climate resilience is in two sections. However, we recognise that net zero and climate resilience need to be approached in an integrated way. For example, the use of nature-based solutions can improve our water catchments, and both lower our carbon footprint and improve flood resilience. But there can also be tensions between net zero and climate resilience - building more capacity in our network and treatment works to increase resilience can result in an increased carbon footprint from the materials we use. We have sought to highlight these interrelationships throughout this Strategy. Our climate decision making approach will also help identify the optimal solutions for net zero and climate resilience.

BOOSTING OUR SUPPLY CHAIN COLLABORATION

Our supply chain is an integral part of our Climate Change Strategy. Many of the emissions that arise from NI Water activities are due to the goods and services we buy. We also rely on our supply chain to keep our services running and must be aware how climate change might affect their availability.

We recognise that working with our suppliers to reduce their emissions and improve their climate resilience is vital for delivering our Climate Change Strategy. The ability of our supply chain to provide us with skills and resources is key for continued services and therefore improving our supply chain resilience ultimately improves service to customers.

SUPPORTING A JUST TRANSITION

We recognise that our approach to building a net zero and climate resilient business must be equitable and well managed. Affordability is a key criterion in ensuring public support for net zero and becoming climate resilient. Collaboration with other utilities, regulators, Government and other sectors will be key to optimise the transition path.

REFRESHING OUR CLIMATE CHANGE STRATEGY

Our Climate Change Strategy will be refreshed in advance of each regulatory Price Control. This Strategy defines our ambition and our targets which we must deliver over this and future decades. Our immediate actions must deliver the decarbonisation we need now, and further strengthen our climate resilience, so we can support an orderly and just transition.



The Tullychurry forest to bog restoration project, carried out under the 'Source to Tap Project', received a Green Apple Award 2021 in the climate change category.

CLIMATE RISKS AND OPPORTUNITIES

The climate risks we face span transition risks and physical risks. Addressing these helps us to protect our customers where we can from the worst impacts of climate change and presents us with an opportunity to invest for sustainable outcomes, such as the new low carbon energy sources outlined in our Power of Water Report.

TRANSITION RISKS

Transition risks are about the risks of transitioning to a net zero economy. Limiting warming to 1.5°C means organisations face transition risks from the imposition of government policy and regulation, such as the introduction of carbon taxes, climate litigation, reputational exposure, and shifting consumer preferences, as well as from the 'green premium' on new technology. Transition risks can lead to additional funding pressures and the stranding of assets which are no longer useable under new policy and regulation.

PHYSICAL RISKS

With every small increase in average global temperatures there are changes to the climate, which can lead to more severe weather events and degradation of the natural environment. These are the physical risks of climate change. We have already seen the impact of global warming across our region through increased flooding, storms, prolonged periods with no rainfall and more frequent periods of intense rainfall. All of these factors create challenges across our business.

OPPORTUNITIES

Investing to mitigate the transition and physical climate risks we face brings a wealth of new opportunities. Our Power of Water Report underlined the potential for NI Water's assets to act as catalysts for transforming the energy system by both producing clean, renewable energy and support flexibility of supply. NI Water and its customers will benefit from our renewable transition in the stability of costs and mitigation of emissions, but this can only be fully achieved with collaboration across institutions and stakeholders in Northern Ireland.



Tankering of water and water wise messaging during the heatwave high demand event in July 2021.

Taking the opportunities to mitigate these risks will have wider benefits in reducing inequalities, improving air quality, and creating new jobs and opportunities.

We truly believe that people and organisations across Northern Ireland have the skills and ambition to work collaboratively to deliver a green and resilient economy.

RISK SCENARIO MODELLING

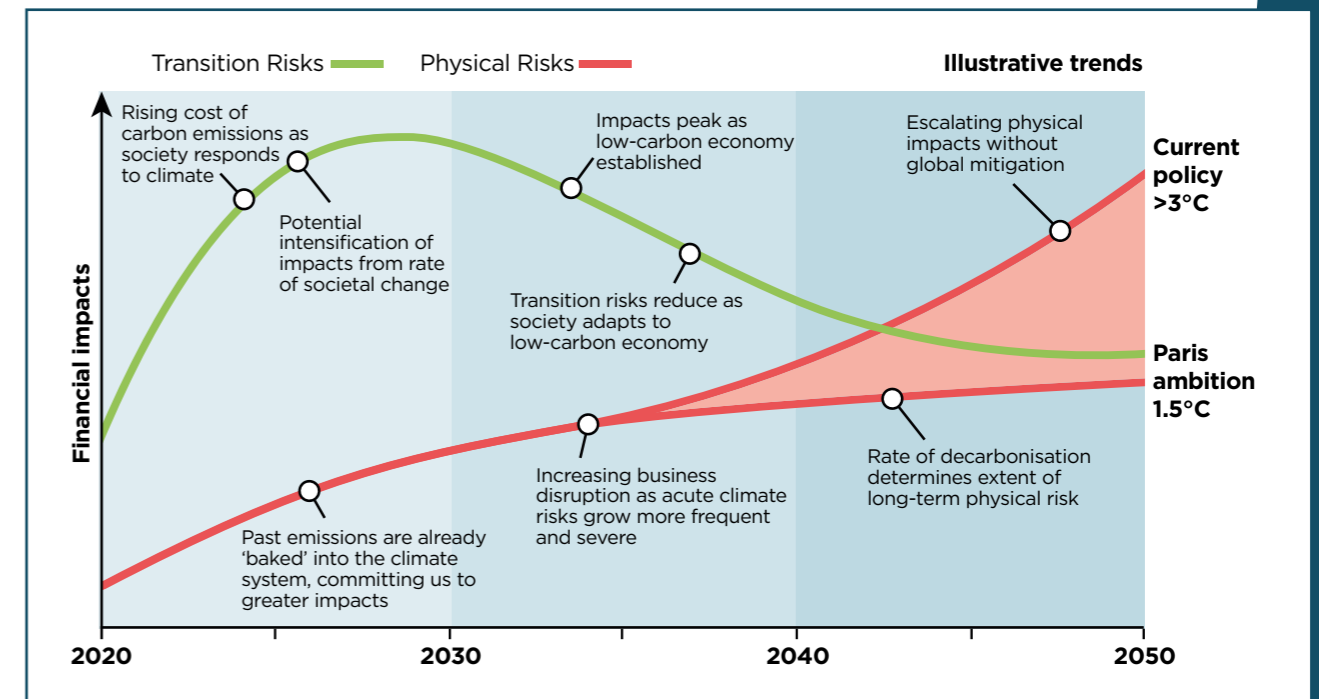
We have developed a Climate Risk Model to assess the financial impacts of physical and transition risks.

The model points to illustrative trends for physical and transition risks over the next three decades. These show transition risks peaking over this decade before being overtaken by physical risks.

CLIMATE RISKS AND OPPORTUNITIES

INFORMING OUR NET ZERO AND CLIMATE RESILIENCE TARGETS

The model has helped inform the development of our Climate Change Strategy, particularly in relation to the timing of our targets and actions for net zero and climate resilience. The Model has also helped us identify information required to improve our understanding and climate decision making.



Illustrative trends for transition and physical risks over the next three decades.

OUR EMISSIONS BASELINE

REPORTED EMISSIONS

We account for our greenhouse gas emissions annually using the UKWIR Carbon Accounting Workbook, designed specifically for water companies to measure and report their emissions. The emissions are split into different categories known as scopes.

The Workbook is used to prepare the disclosures in our Annual Integrated Report and is aligned to the UK Government Environmental Reporting Guidelines, including the Streamlined Energy and Carbon Reporting Regulations.

We report a fourth category of emissions in our Annual Integrated Report. This category is known as 'avoided emissions' and relates to emission reductions that occur outside of our value chain but are

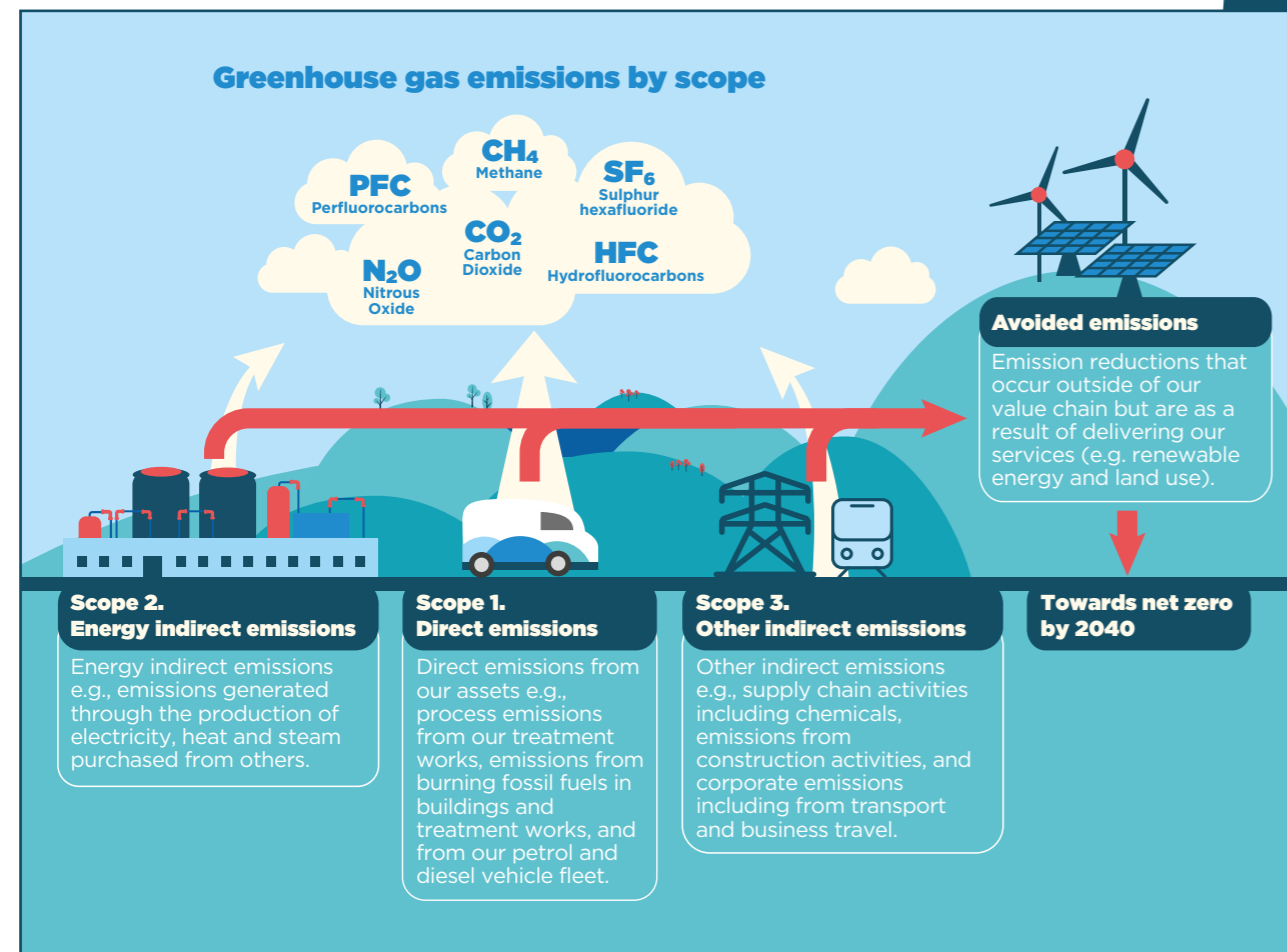
as a result of delivering our services (e.g. renewable energy).

For the first time ever, we augmented our existing 2020/21 reporting by estimating our full scope 3 emissions, so we have a better understanding of our total annual emissions footprint.

This is important as it allows us to set a baseline, which we can now use as a reference point in future years to compare how we have progressed in decarbonising our business.

We have already made sizeable reductions in our greenhouse gas emissions since we began reporting.

But we know there is much more to do, and we are playing our part in the water industry's drive to improve the accuracy of our reporting.



OUR EMISSIONS BASELINE

Our baseline is made up of 2020/21 emissions from our activities, and sub-divided into scopes 1, 2 and 3.

SCOPES 1 AND 2 - OUR DIRECT AND INDIRECT EMISSIONS

The 2020/21 emissions previously reported in our Annual Integrated Report and Accounts have been adjusted to reclassify the scope 1 and scope 2 emissions relating to Omega and Kinnegar Public Private Partnership contracts as scope 3 emissions as shown in **Appendix A**. This is simply a reclassification between scope categories in line with best practice⁵ and has no impact on total emissions.

Our scope 1 and 2 emissions for 2020/21 (net of avoided emissions) are 49,865 tCO₂e. This is made up of the following main sources of emissions:

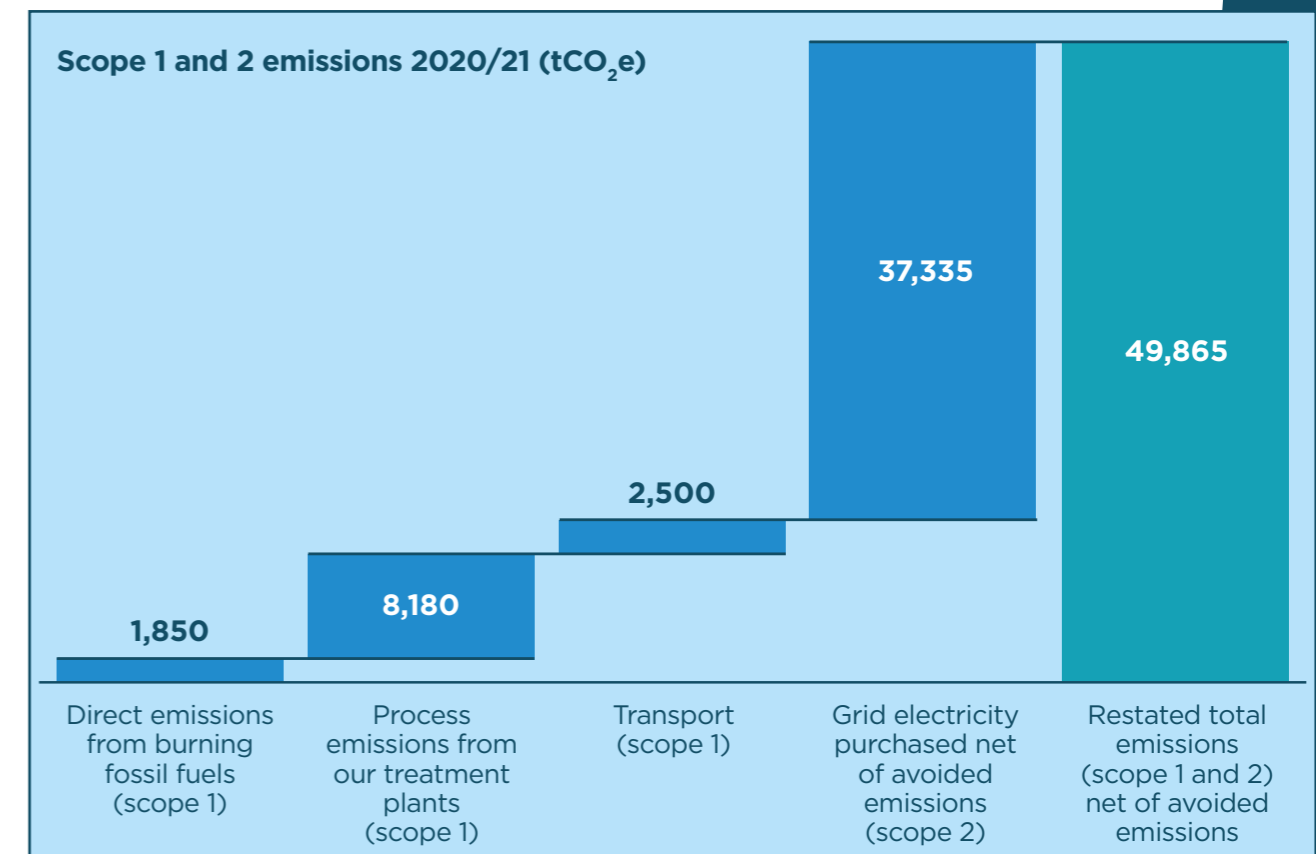
- Direct emissions from burning fossil fuels (scope 1) - emissions from the heating system for our buildings;

- Process emissions from our treatment plants (scope 1) - these are greenhouse gases which arise from the treatment of wastewater;

- Transport (scope 1) - emissions from our vehicle fleet; and

- Grid electricity purchased (scope 2) - the electricity grid is decarbonising but is still carbon intensive. The emissions are net of avoided emissions relating to renewable electricity exported or purchased.

The use of electricity supplied through the grid is the largest source of our scope 1 and 2 net emissions. It is also our largest driver of day to day running costs. As the largest user of electricity in Northern Ireland, we have seen the annual cost of electricity we buy double from around £30m in 2020/21 to over £60m in 2021/22. Our electricity costs are forecast to be around £85m in 2022/23, with the potential for further increases in 2023/24, reflecting inflation and volatility in the energy market.

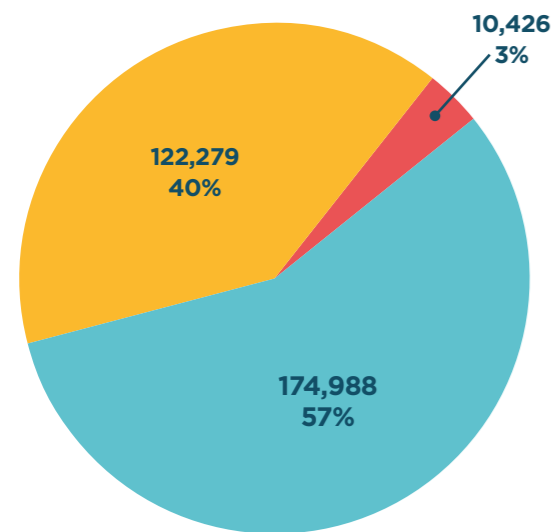


⁵Greenhouse Gas Protocol, Scope 3 Calculation Guidance version 1.0 (2013), <https://ghgprotocol.org/scope-3-technical-calculation-guidance>

OUR EMISSIONS BASELINE

NI Water's total electricity consumption was 307,693MWh in 2020/21. The majority of the electricity consumed was non-renewable grid electricity (57%), with the remaining consumption (43%) relating to renewable electricity. The majority of this renewable electricity was purchased from the grid (40%), with a small proportion (3%) generated.

Total electricity consumption 2020/21 (MWh)

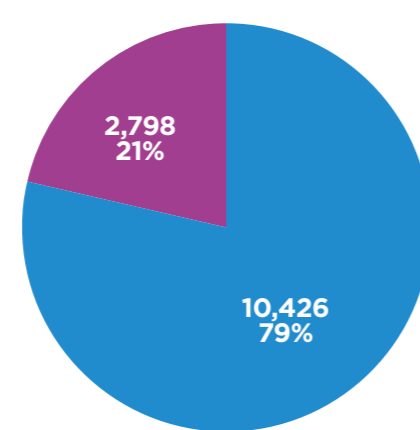


- Grid electricity purchased (excluding renewable energy)
- Grid electricity purchased - renewable energy
- Renewable electricity generated and used
- **Total electricity consumption (307,693MWh)**

The total renewable electricity generated was 13,224 MWh in 2020/21, of which the majority (79%) was used by NI Water. The remaining renewable electricity (21%) was exported to the grid.

NI Water's electricity consumption and renewable energy generation is shown below:

Total renewable electricity generated 2020/21 (MWh)



- Renewable electricity generated and used
- Renewable electricity generated and exported to the grid
- **Total renewable electricity generated (13,224MWh)**

OUR EMISSIONS BASELINE

SCOPE 3 EMISSIONS - OUR SUPPLY CHAIN AND INDIRECT EMISSIONS

The 2020/21 emissions previously reported in our Annual Integrated Report and Accounts have been adjusted to reclassify the scope 1 and scope 2 emissions relating to Omega and Kinnegar Public Private Partnership contracts as scope 3 emissions as shown in **Appendix B**.

We undertook an analysis of our scope 3 emissions across all relevant categories to inform our baseline, aligned with the Greenhouse Gas Protocol⁶ - the globally recognised standard on emissions reporting. The emissions were estimated by either allocating a carbon factor to business spend on specific activities, or by allocating a carbon factor to specific

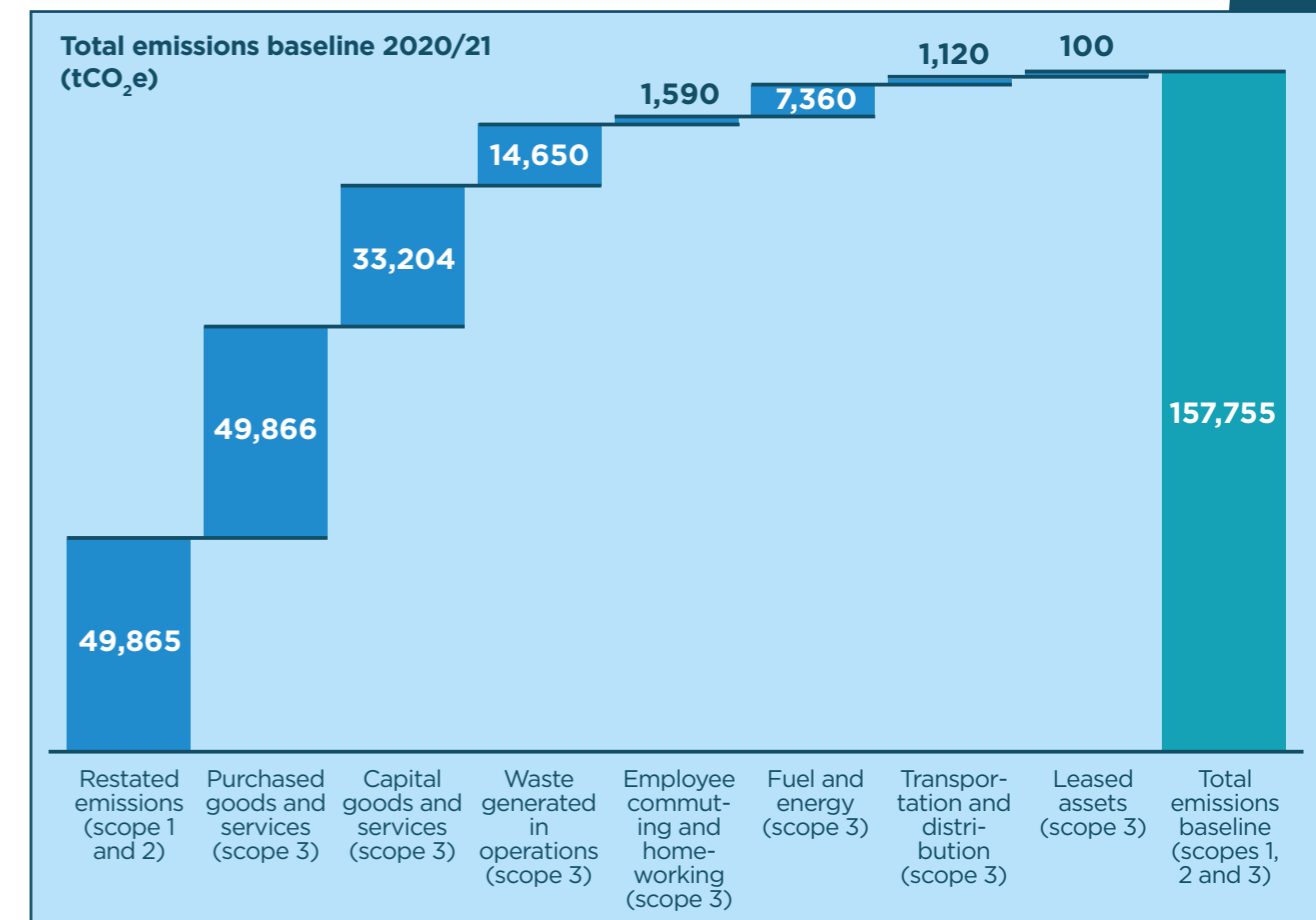
activity data, such as miles travelled for transport.

The analysis of our scope 3 emissions for 2020/21 totalled 78,933 tCO₂e. The vast majority of these - 92% - come from purchased and capital goods and services, which includes things like chemicals, materials and machinery. Refer to **Appendix C** for further details.

Our total estimated scope 3 emissions in 2020/21 (restated scope 3 emissions plus analysis of scope 3 emissions across all relevant categories) are 107,890 tCO₂e as shown in **Appendix D**.

EMISSIONS BASELINE

The total emissions baseline for 2020/21 is detailed in **Appendix E** and summarised below. We have used location based emissions in this strategy. Our future reporting will include both location and market based emissions⁷ in line with best practice.



⁶Greenhouse Gas Protocol, Scope 3 Calculation Guidance version 1.0 (2013), <https://ghgprotocol.org/scope-3-technical-calculation-guidance>

⁷Location based emissions use average grid emissions to calculate electricity emissions. Market based emissions use emission factors specific to the actual electricity purchased.

OUR EMISSIONS BASELINE

WASTEWATER PROCESS EMISSIONS

A significant part of our emissions come from the greenhouse gases emitted from treating wastewater. The natural cycle of sewage sludge leads to the emittance of nitrous oxide (N₂O) and methane (CH₄), which are potent greenhouse gases.

Different types of treatment facility produce different amounts of these greenhouse gases, and we are currently trialling ways to reduce them in the processes we use to treat wastewater, for example using oxygen from hydrolysis to improve the efficiency of our wastewater sites by around 25%⁸.

The water industry globally is facing uncertainty in the actual amount of nitrous oxide and methane which are produced in wastewater treatment. In addition, the current methods of reporting use generic emissions factors which don't accurately represent the different types of treatment processes.

The water industry is investing in monitoring and measuring equipment to better understand the total emissions, but it is thought our reporting of these emissions underestimates the total amount.

We are working with our industry peers to resolve this. As measurement techniques improve, we may find our actual emissions are larger than currently reported, and we will need to make contingency plans to include these in our net zero targets.

Based on the uncertainties and current industry practice, our net zero 2040 baseline currently excludes some of these process emissions. We will include all of these emissions in our net zero 2040 baseline and target once we are able to quantify them.

LAND USE

Another area of priority is to understand the emissions associated with how our natural landscape of around 11,000 hectares is used by NI Water, farmers, and others. Peatland and forestry together comprise around 5,500 hectares of land owned by NI Water.

The amount of carbon sequestration in NI Water's land holdings is highly uncertain due to limitations in the land data. Depending on its condition, peatland often emits carbon. Without a baseline of the current condition of the peatland, there is significant variance in results when applied to NI Water's landholdings. The potential for sequestration of carbon through the significant native deciduous tree planting on NI Water land is dependent on the trees planted and the maintenance regimes. Again, due to the different methodologies available to estimate sequestration, the variance in results is wide. Improvement to our land data will help us better understand sequestration and biodiversity.

Land ownership and type data has been combined with carbon sequestration rates to provide an indicative range of carbon sequestration. The commercial forestry land holdings (around 3,560 hectares) have the potential to **sequester** between 3,780 tCO₂e and 189,430 tCO₂e per year. It is estimated that the peatland landholdings (around 2,040 hectares) could be **emitting** between 4,590 tCO₂e and 164,140 tCO₂e per year.

Based on uncertainties and current industry practice, our net zero 2040 baseline currently excludes land use. We will include land use in our net zero 2040 emissions baseline and target once we are able to quantify the emissions and sequestration.

OUR EMISSIONS BASELINE

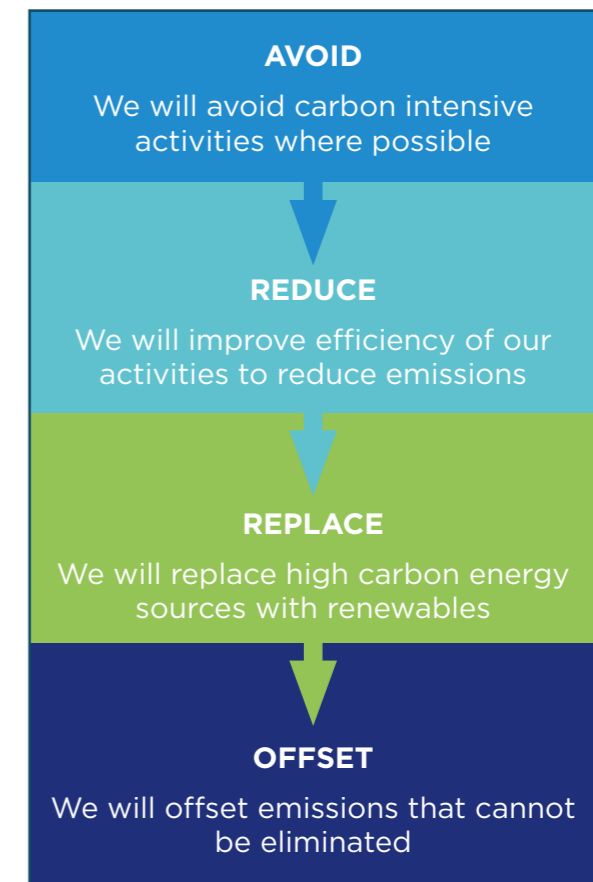
NET ZERO 2040

Our net zero 2040 target will be measured against our 2020/21 baseline emissions of 157,755 tCO₂e.

We will refresh this baseline for any structural changes that have a significant impact such as changes in calculation methods, outsourcing or insourcing⁹. Changes to the baseline will be guided by materiality thresholds. We will disclose these thresholds and progress against our baseline in our Annual Integrated Report and Accounts.

NET ZERO PRINCIPLES

We will apply the following investment prioritisation hierarchy for our net zero transition aligned with best practice. Our future ambition will be to meet the standards set out by the Science-based Targets Initiative¹⁰. Science-based standards are in line with what the latest climate science deems necessary to meet the goals of the Paris Agreement - limiting global warming to well below 2°C above pre-industrial levels and pursuing efforts to limit warming to 1.5°C. Co-delivery for nature underpins this prioritisation hierarchy.



⁸The emission of 1 kg of nitrous oxide (N₂O) equals 298 kg of CO₂ equivalents, and the emission of 1 kg of methane (CH₄) is equal to 25 kg CO₂ equivalents.

⁹<https://www.gov.uk/government/publications/environmental-reporting-guidelines-including-mandatory-greenhouse-gas-emissions-reporting-guidance>

¹⁰<https://sciencebasedtargets.org/resources/files/Net-Zero-Standard.pdf>

NET ZERO ENERGY 2030

At NI Water, we're committed to delivering a net zero, climate resilient future for all our customers.

We have challenged ourselves to go further and faster than the net zero 2050 targets set in law.

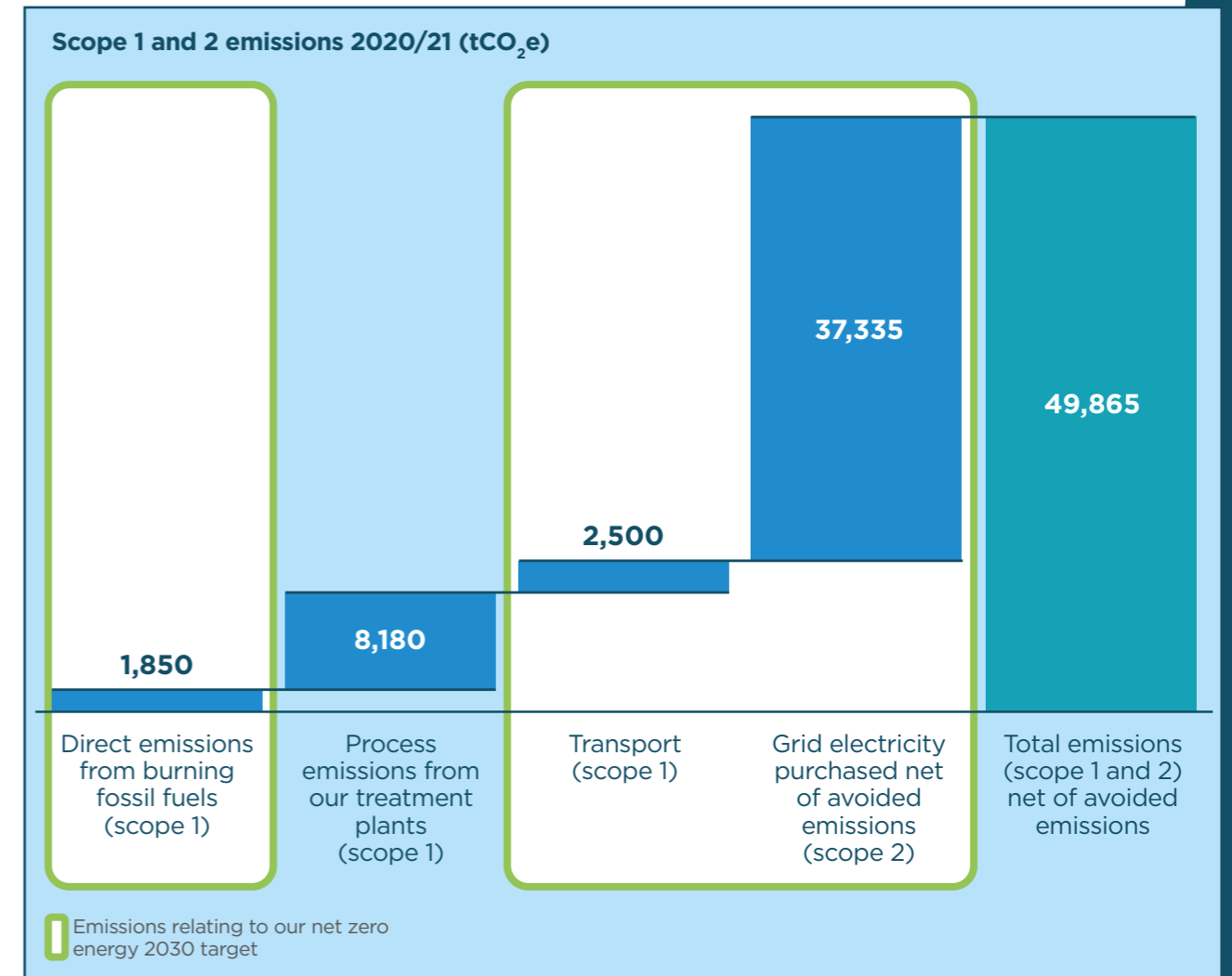
NI Water is committing to achieve net zero for the energy we use by 2030 and net zero for all our emissions by 2040, as measured against our 2020/21 adjusted baseline.



NET ZERO ENERGY 2030

Our first commitment is to achieve net zero for the energy we use by 2030. Our net zero 2030 target will include scope 1 emissions from the fuels we use in

heating, scope 1 emissions for transport and scope 2 emissions for the grid electricity we use.



Our net zero 2030 target also includes the scope 3 emissions from employee commuting and homeworking, fuel and energy (the majority of which relates to the transmission and distribution of the grid electricity) and leased assets such as office buildings.

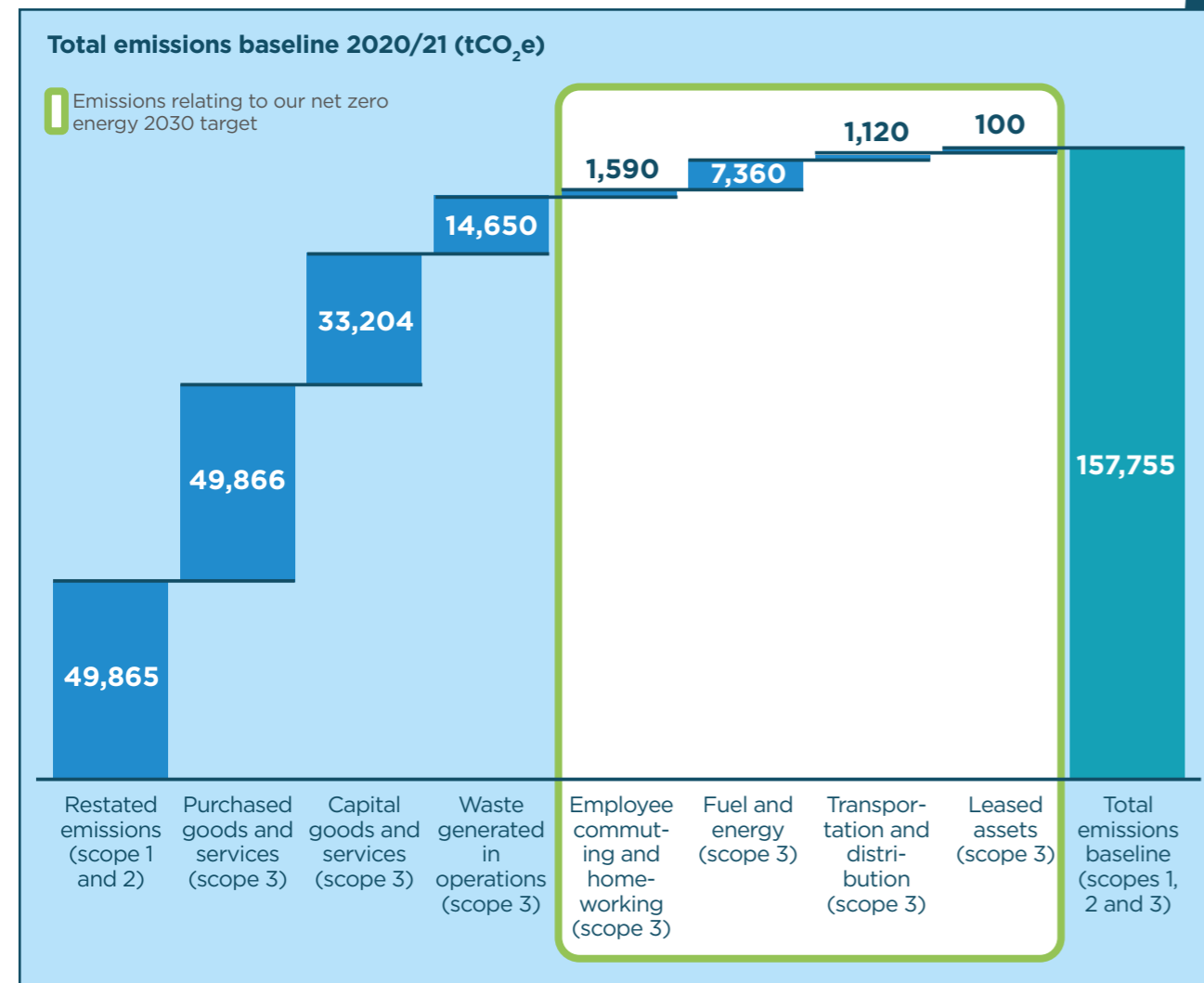
NI Water is proud to set this target and to play a leading role in transitioning our energy system towards the Northern

Ireland Government's target of 80 per cent of electricity consumption from renewable sources by 2030¹¹. We are one of Northern Ireland's largest land holders and our assets offer a wealth of opportunities for decarbonisation. The transition to net zero energy in 2030 will be underpinned by collaboration across government, the Utility Regulator, the NI Environment Agency (NIEA), business and others in Northern Ireland.

¹¹Northern Ireland Climate Change Act (2022).



NET ZERO ENERGY 2030



We expect to achieve net zero energy in 2030 by:

- reducing our energy demand;
- moving to 100% renewable electricity; and
- switch to zero carbon fuels for heating and vehicles.

The 2030 target excludes emissions from our wastewater sludge management processes. We have a Public Private Partnership ending in 2032 to incinerate sewage sludge for energy and its by product, ash. We are preparing for the end our Public Private Partnership and identifying opportunities to increase the recovery of energy and nutrients from sludge. Eliminating emissions from sewage sludge management is part of our net zero 2040 target, set out in the next section.

NET ZERO ENERGY 2030

REDUCE OUR ENERGY DEMAND

We will reduce our energy demand by focussing on energy efficiency, reducing water demand and deploying intelligent control systems.

ENERGY EFFICIENCY

Energy efficiency is critical to achieving net zero and sits at second on our decarbonisation hierarchy on page 15. Not only can it help deliver cost efficiencies, but it can help to offset the increase in energy consumption arising from the demands of population growth on our services.

We have several initiatives underway across our Energy Reduce Use Programme. We have developed a fully automated energy platform (ISO 50001 certified), enabling reduced cost of operation and energy efficiencies. Initiatives across our water and wastewater production lines include the rollout of 'real time control', source optimisation, process and control at wastewater sites, wastewater pump optimisation work, completion of air bleeding work at wastewater treatment works and LED lighting.

These initiatives are helping us to reduce our consumption, use more sustainable sources of energy and deliver cost efficiencies.

LIGHTING UP THE WAY

Drumaroad water treatment works is one of our largest sites and produces water for around 25% of our population served. Drumaroad was selected as part of a wider initiative to review sites in terms of energy usage and performance. The LED installation on site will assist in realising energy efficiency of around 107,000kWh/year as well as improving the lighting inside and outside the building, which will result in a safer working environment.



Energy efficiency LED lighting at Drummaroad water treatment works, County Down.

NET ZERO ENERGY 2030



REDUCE WATER DEMAND

By using less water, customers can reduce the stress on our natural resources and reduce the energy that NI Water needs to provide drinking water and in the treatment of wastewater. Climate change, whether in times of drought or times of flooding, is likely to create challenges and increase our energy demand. Reducing water demand will help to make us resilient to climate change as well as help us to achieve net zero. Read more about water efficiency on page 44.

INTELLIGENT OPERATIONS

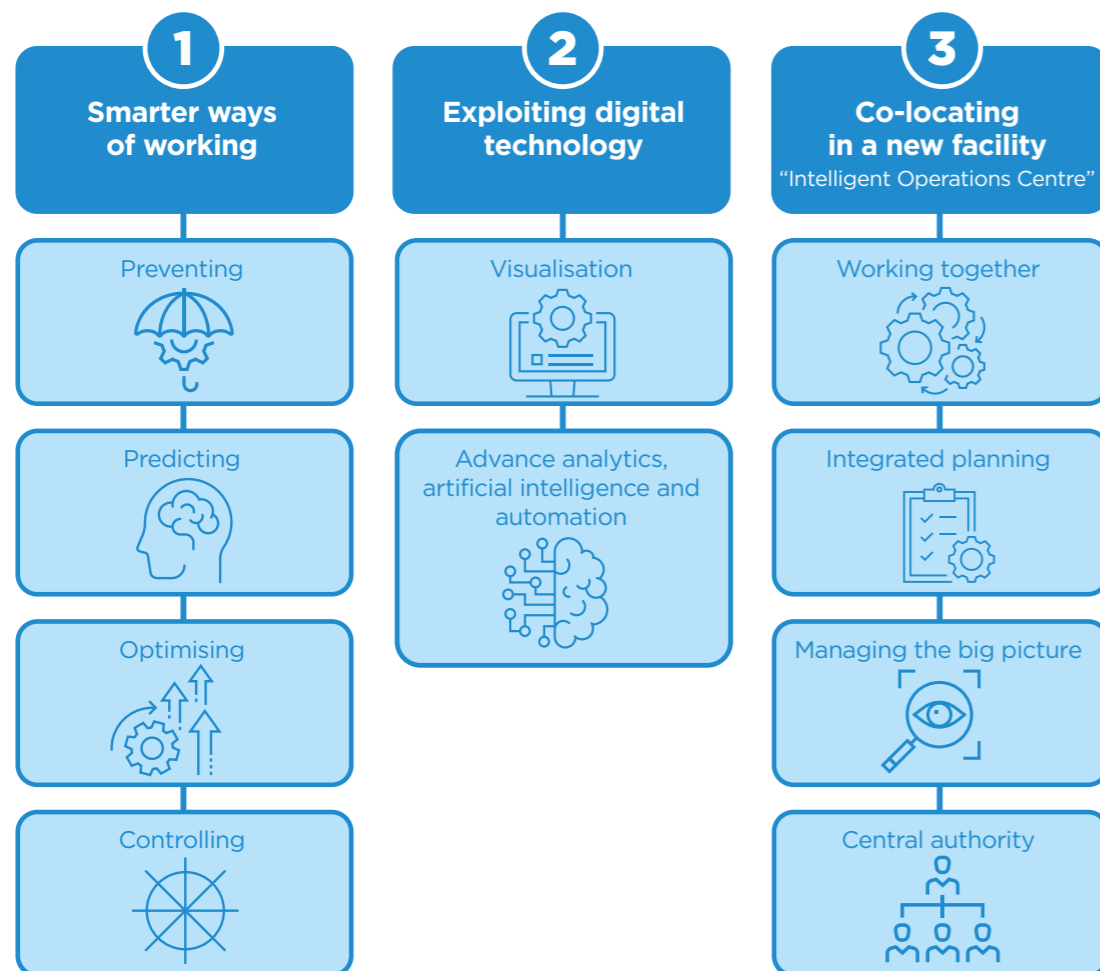
Intelligent Operations is a new approach to how we operate. It comprises smarter ways of working that:

- ensure a more preventative approach to maintenance of assets instead of fixing when they fail;

- predict when issues are about to occur and intervene sooner – so reducing our reliance on customers having to tell us that issues have occurred;
- set up and tune our end-to-end water and wastewater system to run at its optimum state; and
- establish more central control of assets and the work we do on them.

This is enabled through the deployment of digital and visualisation technology and a new Intelligent Operations Centre. The centre opened in 2021/22 and brings together around 180 of our dispersed operational staff to work together in a more collaborative and intelligent way.

Intelligent Operations



NET ZERO ENERGY 2030



In an exciting innovation to the benefit of Northern Ireland, we are exploring the potential to operate our assets to support development of the electricity grid. We are modelling how our assets can offer flexibility across our 3,000 geographically dispersed electricity grid connected sites. The aim is to demonstrate how our use of electricity

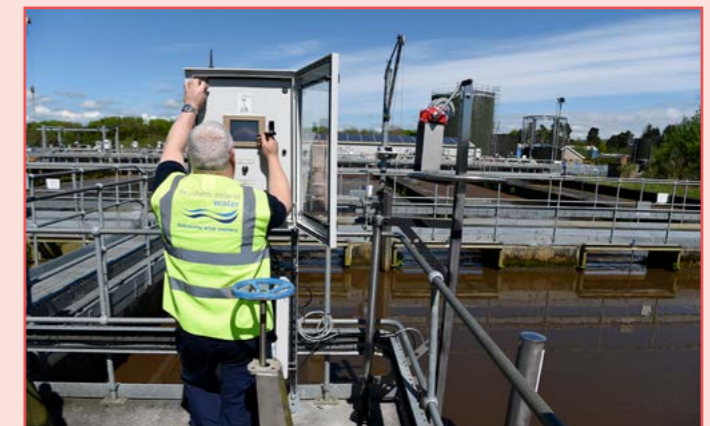
can be lowered at peak periods by the intelligent and automated control of large pumps, blowers, and sludge dewatering equipment. Two pumping stations are being used in a pilot project with NIE Networks. By acting as a pathfinder with NIE Networks, this work has potential to help support a more resilient and affordable energy system.

POWER PLAY

Pumping and blowing accounts for around two thirds of our electricity needs. We are deploying intelligent controls to our treatment processes, including major pumps and blowers, to minimise energy usage and to operate at times of lower power prices.

We have implemented real time control technology and process control measures at our wastewater treatment works. Various chemicals are used in the secondary treatment stage process to remove harmful substances from the water. Real time control technology enables modifications to the process, such as altering the levels of dissolved oxygen, to minimise the energy usage whilst ensuring compliance with discharge consents. The technology not only helps us deliver energy efficiencies, it also provides the ability for the treatment works to quickly respond to any change in demand, to ensure compliance is not compromised.

The data from meters and sensors is made available to our Intelligent Operations Centre, allowing more central control of our assets and supporting reductions in our energy demand. 2022/23 marks the installation of over 80% of the meters and sensors required to bring dashboards to life that will provide the insight into pump efficiency, optimise the use of blowers, reduce use in peak charging periods and increase night-time running.



Real time control technology at Antrim wastewater treatment works, County Antrim.

NET ZERO ENERGY 2030



SHIFT TO 100% RENEWABLE ELECTRICITY

Meeting net zero will require that our electricity consumption, whether produced on site or procured from the grid, is 100% renewable by 2030.

Our day-to-day operations across our £3bn asset base are heavily dependent on electricity. We rely on electricity to run equipment that turns raw water into drinking water and pump it to the right place. Similarly, we rely on large amounts of electricity to collect and pump the contents of our sewers to our wastewater treatment works.

NI Water is Northern Ireland's single, largest electricity consumer.

We access most of our power from the electricity grid. Each unit of power we are currently supplied with is made up of 55% electricity from fossil fuel sources and 45% renewables¹². Not only is this energy carbon intensive, but it is also subject to price volatility associated with fossil fuel markets and geopolitical factors.

Our path to decarbonising our power requires us to fully switch away from power produced by fossil fuels and

use only renewable power. We are already making positive steps in this direction as demonstrated by our purchase of renewable electricity and investment in solar, green hydrogen and industrial batteries.

Our plan for shifting to 100% renewable electricity is to:

- invest in solar generation and industrial batteries. We will double our installation of solar, supported by industrial batteries, to provide around 10% of our total demand;
- explore the development of wind farms. We will seek the ability to invest in securing our own wind farm (or farms) with enough capacity to match our demands – around 75MW. This will provide access to renewable power and price stability; and
- agree terms for renewable energy from power purchase agreements. Should it not be possible to secure our own wind farm, or at the scale envisaged, then we will look to long term power purchase agreements and secure access to certified renewable power.



Piloting the production of green hydrogen - NI Water staff showing Alliance Party of Northern Ireland MLA's Andrew Muir MLA and Stewart Dickson MLA the 10kW Electrolyser at Kinnegar Wastewater Treatment Works in Belfast.

¹²<https://www.economy-ni.gov.uk/sites/default/files/publications/economy/Energy-in-Northern-Ireland-2022.pdf>

NET ZERO ENERGY 2030



SOLAR POWER

NI Water has successfully invested in 60 solar installations at sites across the region. This includes a major solar farm at its largest electricity consuming water treatment works at Dunore, near Antrim. Built using 24,000 solar panels on 30 acres of land, this 6MW installation has consistently out-performed expectation, providing renewable electricity and reducing costs.

A further investment is planned at Dunore water treatment works to extend the generating capacity by 2.5MW as well as to deploy a 5MW industrial scale battery.

The battery will enable NI Water to store low-cost solar power that is not immediately used. This can then be deployed during more expensive periods and make use of more renewable electricity at night. As well as providing NI Water with resilience in the event of an interruption to supply, the battery will provide a range of essential services for the electricity distribution network to operate.

We deployed our first battery energy storage system at Ballykelly wastewater treatment works, County Derry/Londonderry in 2022/23. The battery system enables the treatment works to operate using on site solar power for much of the year. In winter months, during periods of lower solar generation, the battery system can be topped up from the grid using off-peak cheaper energy tariffs. Reed beds are used as part of the treatment process, which scooped a 2022 International Green Apple Environment Award and



NI Water CEO at the Dunore solar farm, County Antrim.



Solar powered battery energy system at Ballykelly wastewater treatment works, County Derry/Londonderry.

was named Infrastructure Project of the Year at the 2022 ICE Sustainability Awards and the CEF Construction Excellence Awards.

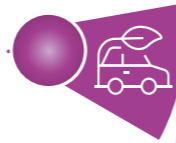
NI Water will continue to identify solar investment opportunities alongside its electricity consuming assets. This includes expansion of solar at other sites, installation of more solar farms, and large-scale battery deployment.



Find out more: <https://www.niwater.com/dunore-solar-farm/>

Moving to 100% renewables will not be enough to deliver our net zero energy 2030 target. This is due to the need to decarbonise our heating and transport.

NET ZERO ENERGY 2030



SWITCH TO ZERO CARBON FUELS FOR HEATING AND VEHICLES

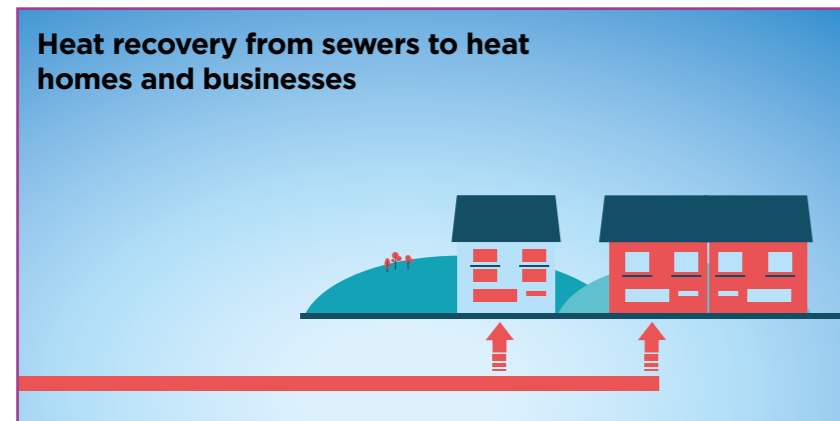
Our next biggest source of emissions from energy consumption is our buildings and fleet of vehicles. Switching to zero carbon fuels to power these will help us remove around 7,000 tCO₂e per year.

HEATING OUR BUILDINGS

Over the next seven years to 2030, we will switch to alternative methods such as electric heat pumps, and possibly geothermal or hydrogen to replace the gas and oil systems currently in place.

Our assets also offer opportunities to support the transition. For example, our sewers offer a potential source of low-grade heat for recovery and upgrade to supply local buildings. This has already been explored in the UK, where water companies are using a range of sources of heat from their assets as alternatives to conventional heating. There is a benefit for the local economy from low carbon heat with price stability. We estimate that without collaboration with local businesses and Government, we are about ten years away from seeing this deployed at scale. Other opportunities include energy from sludge and geothermal.

In tackling energy efficiency, we expect to reduce energy demand from our assets. However, we must not miss the opportunity to support other parts of our economy decarbonise through potential new sources of low carbon heat.



NET ZERO ENERGY 2030



SWITCHING OUR VEHICLES TO ZERO EMISSIONS

We operate around 600 vehicles of different sizes and ages within our fleet.

Our immediate plan is to switch around 200 of vans to electric when they become due for replacement, but all our vehicles will need to be switched to reach net zero.

Ahead of this we are establishing an electric charging infrastructure across our sites. We are aiming to install 55 charging hubs to support our fully electric fleet. This has potential to be a shared charging infrastructure for use by the public sector.

We will explore the use of hydrogen for our larger vehicles such as trucks and the diesel generators that provide back-up energy in case of emergency across our various sites. We will also explore the use of synthetic and bio-fuel substitutes to support the transition to zero emissions.

AVOIDING UNNECESSARY STAFF TRAVEL

We will encourage staff to travel only when necessary and use lower carbon forms of transport such as public transport, and active travel such as walking or our cycle to work scheme.



NI Water CEO and staff with NI Water's first electric vans.



Electric charging infrastructure at one of NI Water's sites.

NET ZERO 2040

Our 2040 net zero target includes all Scope 1, 2, and 3 emissions, inclusive of all construction and supply chain emissions. As noted on page 13, the total estimated scope 1, 2 and 3 emissions for 2020/21 is 157,755 tCO₂e. This is our total emissions baseline.

We know we face several challenges to make this a reality, some of which are listed below. But, by making this commitment we are playing our part in mitigating our emissions to avoid the worst climate impacts.

Our leading challenges are explored in this section, and include:

SCOPE 1 AND 3 EMISSIONS FROM WASTEWATER TREATMENT AND SLUDGE

- mitigating our process emissions from our wastewater treatment;
- eliminating our emissions from sludge and process waste disposal;

REMAINING SCOPE 3 EMISSIONS

- removing pollution at source to reduce the need for carbon intensive 'end of pipe' treatment solutions;
- eliminating our construction and wider supply chain emissions;
- expanding sustainable land management; and
- using a credible approach to offsetting our residual emissions using our land holdings.



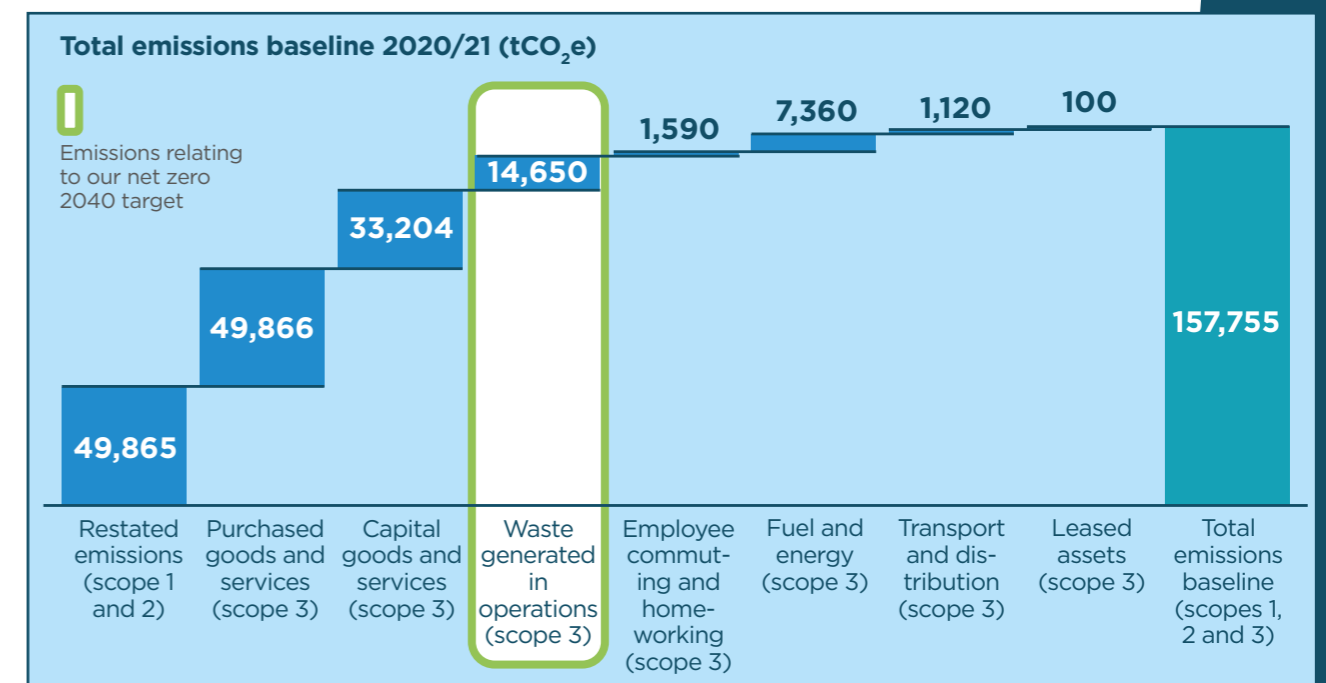
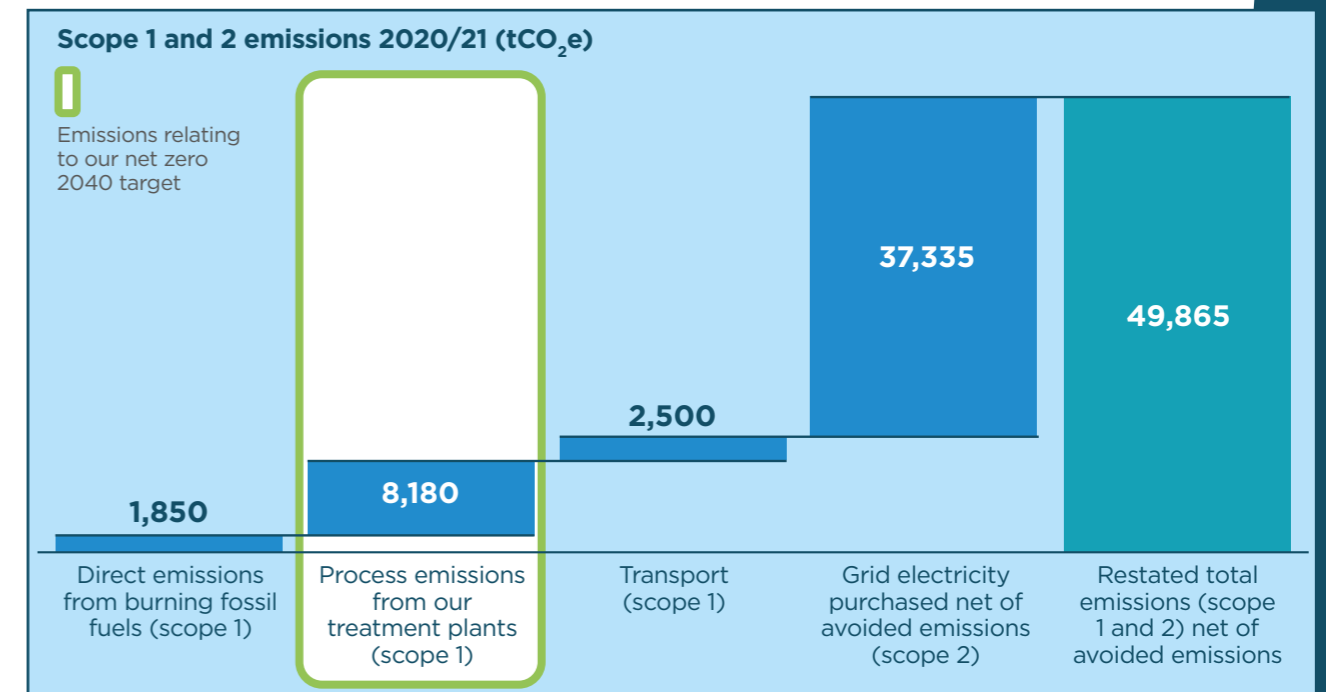
NET ZERO 2040

SCOPE 1 AND 3 EMISSIONS FROM WASTEWATER TREATMENT

We aim to achieve net zero for all our emissions by 2040. We are committed to achieving net zero from the energy we use by 2030, which comprises around 80% of our scope 1 and 2 emissions.

Our 2040 target extends this to include the remaining scope 1 emissions from our wastewater treatment processes totalling 8,180 tCO₂e.

Our 2040 target also includes the 12,400 tCO₂e scope 3 emissions from wastewater sludge and process waste disposal contained within the 14,650 tCO₂e of waste generated in operations. The remaining emissions within this category primarily relate to the disposal of waste from water and wastewater processes to third party land or to landfill.



NET ZERO 2040

RECOVER ENERGY AND RESOURCES FROM SLUDGE

Sludge is what is left over after treating wastewater and recycling the raw water back to the environment. Treated sludge is also referred to as biosolids.

Having first removed as much water as possible and dried it, we take all the sludge from our different treatment centres to Duncrue Street in Belfast. Here it is incinerated under a Public Private Partnership contract with Glen Water Limited. This contract runs until 2032 and preparations are underway for a replacement solution.

This process creates ash, which goes to special landfill in Northern Ireland, and creates electricity via an existing high-pressure steam-driven 3MW turbine at the incinerator site. Considerable investment is being made to improve the quality of sludge dewatering assets to help make the turbine more efficient.

Our industry peers recover the energy from the sludge through advanced forms of anaerobic digestion technology. Not only does this approach remove emissions associated with combusting sludge, but it enables the production of biogas, which can be refined into biomethane, and further transformed in biohydrogen. Both fuels can be used for operating assets, or for injection into the gas grid, which displaces fossil fuel gas, or for use in vehicles. There



Sludge incinerator at Belfast wastewater treatment works, County Antrim.

can be difficulties in the disposal of the digestate due to the presence of micro-plastics, 'forever chemicals' and pharmaceuticals. Other technologies include the decomposition of sludge at high temperatures through a process known as pyrolysis, resulting in carbon being stored in the charcoal.

We will work closely with the Department for Infrastructure to explore the most suitable technology to ensure that a sludge solution is in place by 2032.



NET ZERO 2040

FIND SOLUTIONS FOR PROCESS EMISSIONS

The wastewater industry is investing heavily in research and development of technologies to reduce nitrous oxide (N_2O) and methane (CH_4), which are potent greenhouse gases¹³. While the sector has research at its disposal to estimate these emissions, we need more monitoring and measuring to better understand the total amount of these emissions from our activities. The amount of process emissions is intensified where wastewater treatment works are overloaded.

There are currently no practical and affordable off-the-shelf ways to deal with the unreported process emissions. It may in future require the complete redesign of the treatment process and ultimately require us to cover the significant number of treatment tanks and recover the gases.

In the meantime, we will explore ways to optimally control the operation of the works to minimise greenhouse gas emissions. And for the foreseeable future, we will be reliant on offsetting measures from land and soil management to help to compensate for these emissions.



Ballykelly wastewater treatment works, County Derry/Londonderry.

¹³The emission of 1 kg of nitrous oxide (N_2O) equals 298 kg of CO_2 equivalents, and the emission of 1 kg of methane (CH_4) is equal to 25 kg CO_2 equivalents.

NET ZERO 2040

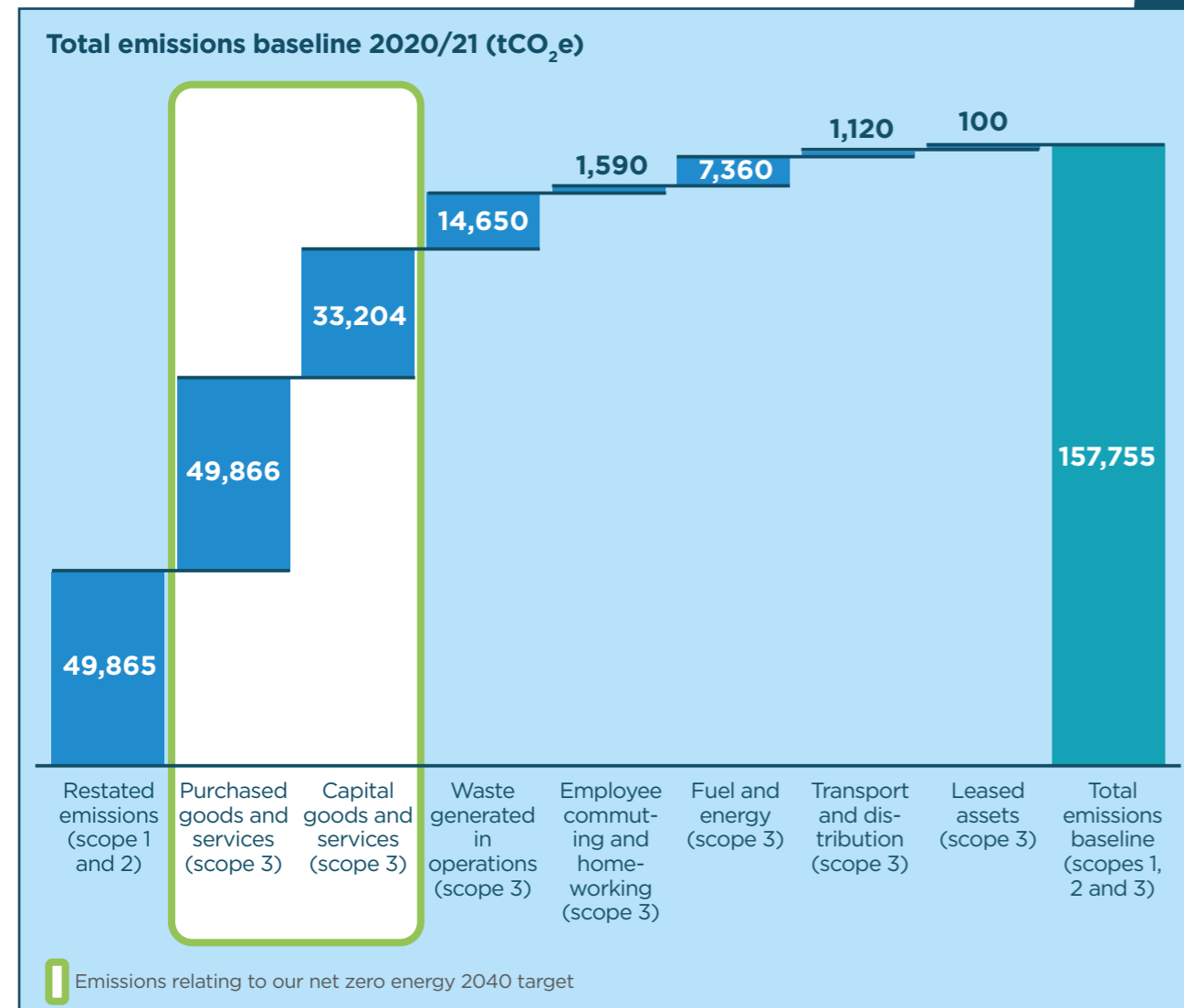
REMAINING SCOPE 3 EMISSIONS

To reach net zero 2040 we must continue to explore opportunities to decarbonise our scope 3 emissions.

Undertaking to reduce scope 3 emissions is a major challenge. We do not own all the land in our water catchments and some of the land that we do own is leased to others. We have limited control of the emissions from our suppliers. With no direct control, we will need to use our influence to support their journey

to net zero. We will also make different decisions about how we procure or how we design our infrastructure to reduce our dependence on carbon intensive materials and find low carbon suppliers. Read about our actions to boost collaboration with our supply chain on page 57.

Purchased goods and services and capital goods and services comprise 83,070 tCO₂e or 77% of scope 3 emissions.



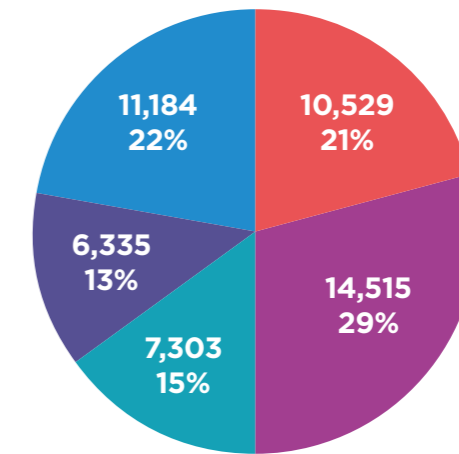
NET ZERO 2040

PURCHASED GOODS AND SERVICES

This category includes all upstream emissions from the production of services procured and products purchased or acquired. Purchased goods and services account for 46% of scope 3 emissions, equivalent to 49,866 tCO₂e. Around three quarters of these emissions relate to the following:

- Public Private Partnership Contracts (Omega and Kinnegar) – emissions relating to contracts for the provision of wastewater treatment and sludge disposal / incineration. These emissions include process emissions, fuels, grid electricity and other supplies;
- chemicals - emissions from production and transportation of the chemicals;
- network maintenance - emissions from the use of machinery, transportation and materials; and
- mechanical and electrical - emissions from the production of electrical equipment and machinery.

Purchased goods and services 2021/22 (tCO₂e)



- Public Private Partnership Contracts (Omega and Kinnegar)
- Chemicals
- Network maintenance
- Mechanical and electrical
- Other supplies
- Total purchased goods and services (49,866 tCO₂e)**



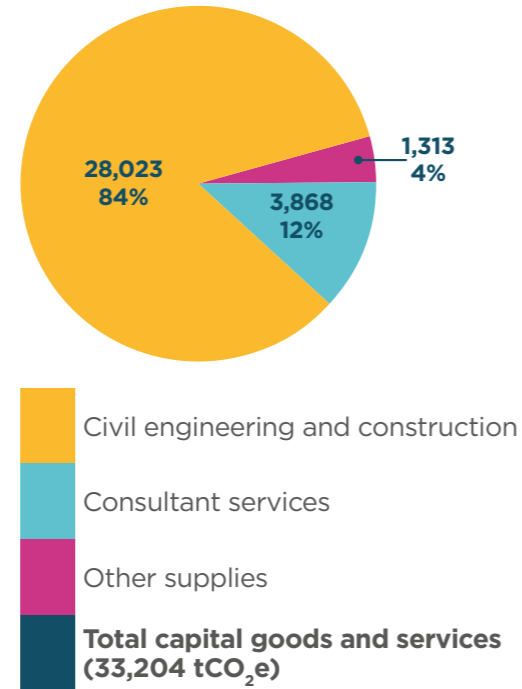
Lime is one of the chemicals used in the treatment of water.

NET ZERO 2040

CAPITAL GOODS AND SERVICES

This category includes all upstream emissions from the production of capital goods purchased or acquired. Capital goods are final products that have an extended life and are used to manufacture a product or provide a service. Capital goods and services account for 31% of scope 3 emissions, equivalent to 33,204 tCO₂e. Most of these emissions occur from civil engineering and construction projects and associated consultant services. This includes the emissions from the fabrication of machinery and materials used in construction.

Capital goods and services 2020/21

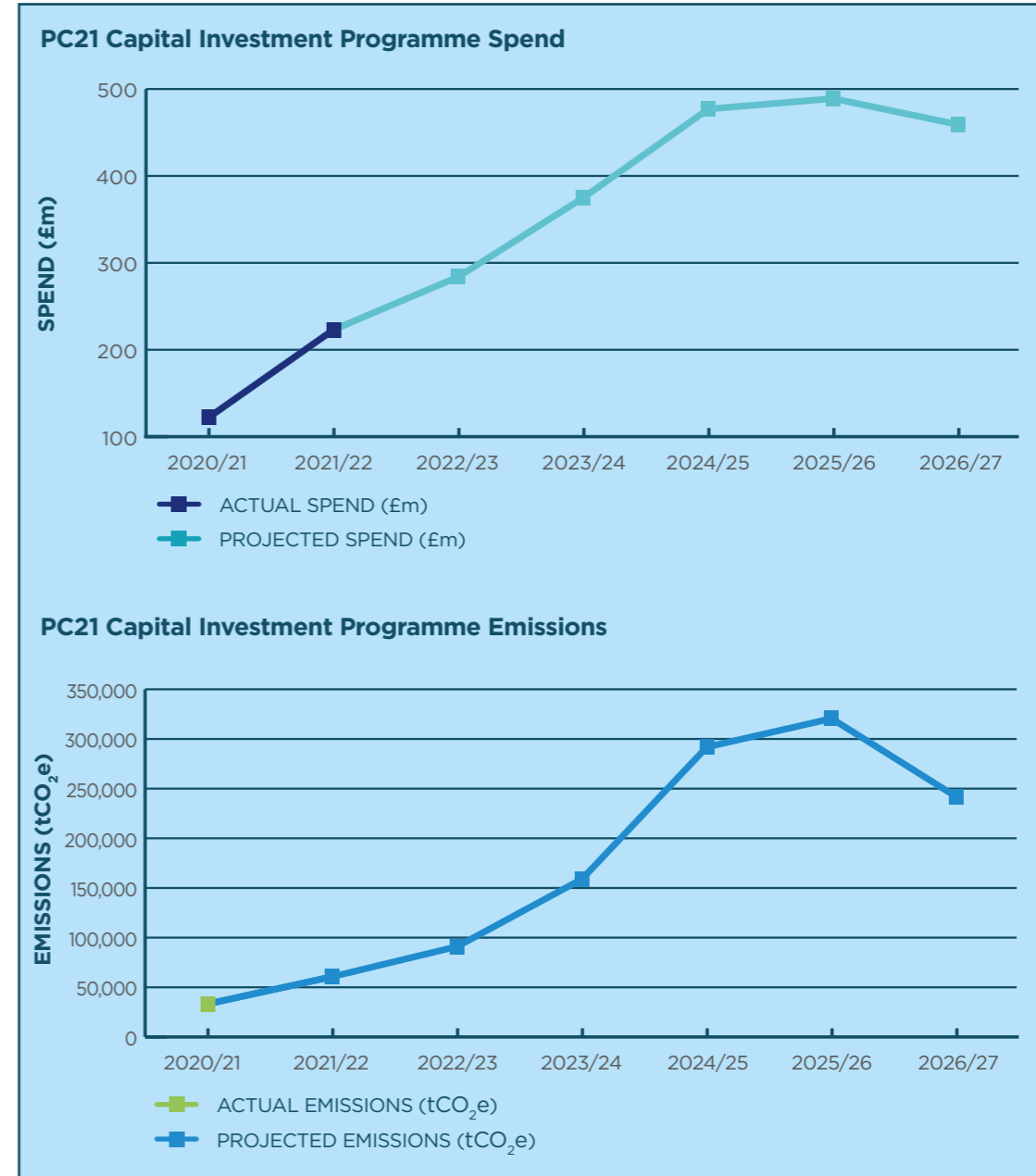


Construction of new treatment tanks at Belfast wastewater treatment works.

NET ZERO 2040

Emissions associated with capital goods and services are closely correlated to the size and scale of the capital investment programme. Based on the projected spend on the capital programme over PC21, the scope 3 emissions from capital

goods and services are likely to increase over PC21, peaking in 2025/26. In a business-as-usual scenario, this could lead to cumulative emissions of around 1.2m tCO₂e over PC21.



NET ZERO 2040



PROTECT RAW WATER SOURCES

We take water from upland and lowland lakes and rivers to supply the wholesome water that we all rely on to drink.

It is important for us to protect these areas from bankside erosion and livestock encroachment as much of the water used for our drinking

water comes from watercourses. This avoids the need for carbon intensive 'end of pipe' solutions to address poor raw water quality and has wider biodiversity benefits.

We will improve the water quality at source in our catchments, by working with farmers and our partner organisations.



€5m project engaged

↓

220 landowners

40km of fencing

Herbicide mitigation measures in over 3,000 acres of land



Educating our water whizz-kids on the Source to Tap project.



Partnering with members of the public across the Erne and Derg river catchments.



Partnering with farmers to reduce water quality risks from the MCPA herbicide.

Our work in the water catchments can reduce the emissions from the production and transport of chemicals. This work also helps reduce nutrients reaching our reservoirs, which combined with warmer temperatures, can cause algal blooms, resulting in taste and odour issues with drinking water. Better

quality water from source supports our decarbonisation hierarchy to avoid emissions and reduce overall emissions. Improvements in the environment are in fact a double win, with improvements for nature and reductions in energy intensive treatment.

Find out more at <https://www.sourcetotap.eu/>

NET ZERO 2040



REMOVE CARBON FROM CONSTRUCTION AND THE WIDER SUPPLY CHAIN

Our baseline shows that the leading source of emissions is from our procured goods and services and capital expenditure - this is the products we buy and the materials we use to build our infrastructure.

Since estimating our scope 3 emissions, we have set out to determine where we can achieve the greatest reductions at least cost. Our capital investment programme under PC21 will have a major impact on our scope 3 emissions, so we must resolve to reduce these as much as possible while delivering the infrastructure our customers need.

We will remove carbon from construction and the wider supply chain by focusing on:

- avoiding the need to construct assets;
- replacing or minimising carbon intensive materials;
- using lower carbon construction methods; and
- innovating with our supply chain partners.

AVOID THE NEED TO CONSTRUCT ASSETS

We will avoid the need to construct assets through use of artificial intelligence, repurposing existing assets such as storage tanks and considering operational solutions such as higher levels of maintenance and inspection activities to extend asset lives.

REPLACE OR MINIMISE CARBON INTENSIVE MATERIALS

We are committed to reducing our dependency on carbon intensive materials. Our dependence on heavy machinery, concrete, steel and chemicals for delivering major infrastructure projects means we are dependent on those industries to offer

ICAT TECHNOLOGY

The Instrumentation Control Automation and Telemetry (ICAT) technology helps us become more resilient to the effects of climate change and reduce our carbon footprint. The technology does this by allowing us to increase the storage volumes within our existing reservoirs, negating the need to build additional reservoir capacity and the significant carbon involved in construction. It also removes the need for our staff to travel to sites to make control changes.

The first ICAT project is focused on installations at our service reservoirs, where treated water is stored locally for customers before use. Using smart instrumentation, programmable logic controllers (PLC's) in conjunction with our telemetry system, we are able to monitor and automatically control flows. We can also control the levels of our reservoirs, making small incremental changes and maximising our network capacity, whilst at the same time maintaining a calm network, which reduces the risk of burst pipes. During extreme weather events or unplanned interruptions, levels and flows can be controlled remotely, either by operational staff or the telemetry control centre. We have installed this technology at over 160 sites.



NI Water staff member operating ICAT technology.

low carbon alternatives where built infrastructure is unavoidable.

Nature-based solutions present an opportunity for low carbon interventions to achieve the same or similar outcome to built infrastructure. We have deployed a number of innovative approaches such as natural reed beds at Clabby wastewater treatment works in County Fermanagh.



NET ZERO 2040



A MUST 'REED' FOR LOW CARBON WASTEWATER TREATMENT

The reed bed system at Clabby wastewater treatment works is an example of how NI Water and its project partners are working to promote 'greener' engineering solutions that have a smaller carbon footprint, require less power and ultimately have reduced impact on the environment. Clabby is the first site in Northern Ireland to use reed bed technology for the full treatment of wastewater. Known as Phragmifiltre®, this innovative system is the first reed bed technology in the UK that provides complete treatment of wastewater in one wetland system, with no pre-settlement and using significantly lower amounts of power. The Phragmifiltre® process stores and composts sludge on site, avoiding the need for tankers to visit the site to remove sludge.



Clabby wastewater treatment works, County Fermanagh - Courtesy of BSG Civil Engineering Ltd.



LOWER CARBON CONSTRUCTION METHODS

Another approach to removing carbon from construction is modular design.

GETTING A LOWER CARBON 'MOVE ON' AT BALLINREES WATER TREATMENT WORKS

We have deployed a lower carbon construction approach to improve resilience at Ballinrees water treatment works, County Derry/Londonderry and the wider water supply zone. Rather than construct multiple static pumping stations, we designed a pumping station that is portable and which can be moved to other locations across our network during dry weather conditions, winter months and other unplanned events. This innovative solution reduced the carbon footprint for improving resilience across the network.



Installation of the modular pumping station.

INNOVATING WITH OUR SUPPLY CHAIN PARTNERS

These approaches all require us to work in partnership with our delivery partners and other water companies to identify and develop the best possible solutions. We will produce engagement and procurement plans with our suppliers

that specifically target carbon reduction and removal. And in doing so we will ensure our partners are appropriately incentivised to offer innovative solutions that require less or no build work.

Read about our actions to boost collaboration with our supply chain on page 57.

NET ZERO 2040

EXPAND SUSTAINABLE LAND MANAGEMENT

We will expand our sustainable catchment area management and wider land management to increase the ability of our land to reduce our emissions.

RESTORING PEATLANDS

Decades of poor land management practices have resulted in the majority of the Northern Ireland's peatlands being unable to remove and store carbon. Peatlands cover 12% of the land area in Northern Ireland, yet 86%

are degraded and only about 1% of the peatland area has been restored over the last 30 years. Preventing further damage and restoring healthy ecosystem function can therefore play an important role in climate regulation. Conserving and restoring peatlands also prevents loss of biodiversity and helps to enhance water quality.

NI Water is progressing a project at the Garron Plateau to restore naturally degraded areas. We plan to have this work validated by the International Union for Conservation of Nature (IUCN) so that NI Water can obtain the carbon credits for the project.

CHANGING THE 'BOG STANDARD' APPROACH AT THE GARRON PLATEAU

NI Water has been a partner in a collaborative project with RSPB and the NI Environment Agency to restore 2,000 hectares of peat bog on the Garron Plateau in Antrim. This is the largest expanse of intact blanket bog in Northern Ireland. Prior to the regeneration work, this unmanaged bog was annually emitting around 17,000 tCO₂e.

Grazing densities were reduced and bog drains dug in the 1960s were blocked in order to restore the former quality of the bog, promote carbon sequestration and filter drinking water for abstraction by NI Water. From the work carried out to date, this has reduced by 10,000 tCO₂e. With



further work, it is estimated that in 2040 there is the potential to instead turn the bog to capturing around 1,000 tCO₂e each year.



Visit <https://www.niwater.com/garron-plateau-bog-restoration-project/>

PLANTING THE RIGHT TREES IN THE RIGHT PLACE

Trees also help to absorb carbon along with improving resilience to flooding and heat stress. Yet Northern Ireland is one of the least wooded regions in Europe, with just 8% woodland cover compared with 13% in Great Britain and 37% in Europe.

Our 10-year partnership with The Woodland Trust Northern Ireland and other partners has resulted in the planting of over 150,000 trees in some of NI Water's 24 drinking water catchments from Counties Antrim to

Armagh. Over the next decade we will plant one million of the right trees in the right place. We look forward to our partnership continuing to grow and flourish like the trees.





NET ZERO 2040



WET WOOD AT FAUGHAN RIVER

In 2020/21 NI Water partnered with the Woodland Trust and provided resources for a 'wet wood' flood alleviation project alongside the Faughan River, County Derry/Londonderry. Tree species planted together include Alder, Aspen, Sessile Oak, Downy Birch and Willows.

The planting of 2,000 trees and creation of ponds within the private land will improve water quality, remove, and store carbon, increase biodiversity by providing new havens for wildlife and have wider health and contribute towards societal well-being.



OTHER CATCHMENT AND LAND IMPROVEMENTS

There are variety of other vegetation types such as grasslands in our water catchments and wider land bank. Improvements to land management practices can help ensure that these other types of vegetation and the underlying soils can help absorb carbon and deliver wider water quality and biodiversity benefits.

PESTS, PATHOGENS AND INVASIVE SPECIES

Our changing climate can increase risk exposure associated with pests, pathogens and invasive species. These can reduce the benefits from sustainable land and catchment management by leading to a deterioration in the health of our water catchments and wider land holdings. We will ensure that our planning mitigates the risk exposure from these types of threats. This will be supported by participation in research by UKWIR and other industry research bodies.

WILDFIRES

Our changing climate also increases the risk exposure to wildfires, which can cause extensive damage to our water catchments and their ability to reduce our emissions. The erosion caused by wildfire increases carbon and other polluting chemicals in raw (untreated) water, and sediment in streams, lakes and reservoirs. This makes raw water more carbon intensive and expensive to process at our water treatment works. We partner with a range of stakeholders including the Mourne Heritage Trust, the Woodland Trust and the National Trust to develop wildfire plans, which include land management approaches such as controlled burning. We have also increased the operational resilience of our treatment works and identified remedial measures such as blocking streams to protect reservoirs.



Wildfires in the Mournes, County Down.

NET ZERO 2040

OFFSET AS A LAST RESORT

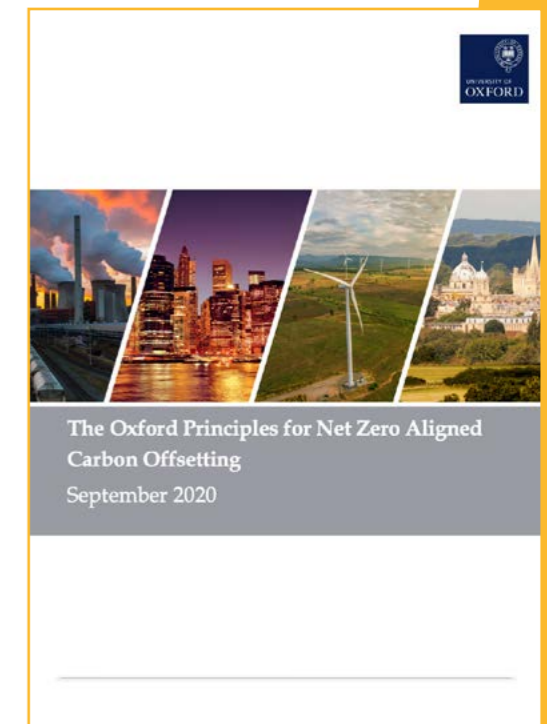
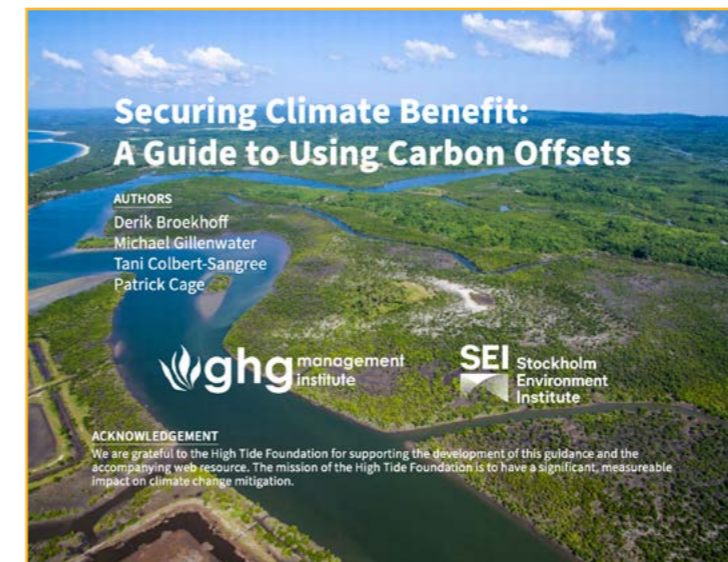
Offsetting is a last resort, following action to avoid, reduce and replace. Yet in 2040 we will still have some residual emissions.

Our intent is to maximise opportunities to remove carbon using our own land such as peatland restoration, tree planting and sustainable land management.

We will consider the use of other offsets that have high environmental integrity.

Our offsetting approach will be aligned with best practice set out by the Science Based Targets Initiative's net zero standard¹⁴, Securing Climate Benefit: Guide to Using Carbon Offsets¹⁵, and the Oxford offsetting principles¹⁶.

We will explore adopting a recognised verification standard for offsets to access the offsets market.



¹⁴<https://sciencebasedtargets.org/resources/files/Net-Zero-Standard.pdf>

¹⁵http://www.offsetguide.org/wp-content/uploads/2020/03/Carbon-Offset-Guide_3122020.pdf

¹⁶<https://www.smithschool.ox.ac.uk/sites/default/files/2022-01/Oxford-Offsetting-Principles-2020.pdf>

READY FOR A CHANGING CLIMATE

The extreme weather events that we are already experiencing provide clear evidence that the climate is warming. However there remains some uncertainty as to the extent to which the planet will get warmer.

By 2050 Northern Ireland is expected to experience a temperature increase of between a 1.9°C, in a middle emission scenario, and 2.4°C, in a high emission scenario. By the 2090s the temperature is projected to be significantly higher of between 3.3°C and 5.2°C.

Climate hazards have potential to cause major disruption to our water and wastewater service. We have summarised the hazards under the following areas:

- **Warmer and drier summers** causing a surge in water demand and risk of drought;
- **Intense rainfall, rising sea levels and severe storms** overwhelming our sewers and leading to internal flooding of homes and pollution of water courses, putting our low-lying coastal sites at risk of flooding, and causing damage to our infrastructure.

We recognise that other hazards exist such as extreme cold, which can also cause a surge in water demand. These hazards also pose indirect risks to us by impacting on infrastructure that we are dependent on such as the road network, on our people or on our supply chain.

As an operator of critical national infrastructure, we must be ready for climate change.

We are moving our business to a higher state of readiness by planning for two degrees of temperature rise by 2050 and preparing for four degrees by 2090.

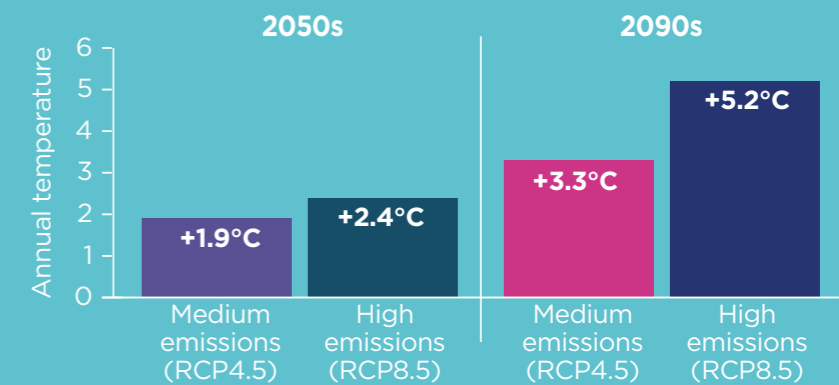
As part of this, we will ensure that our business continuity plans, major incident plan and commercial insurance programme are aligned with this Climate Change Strategy.



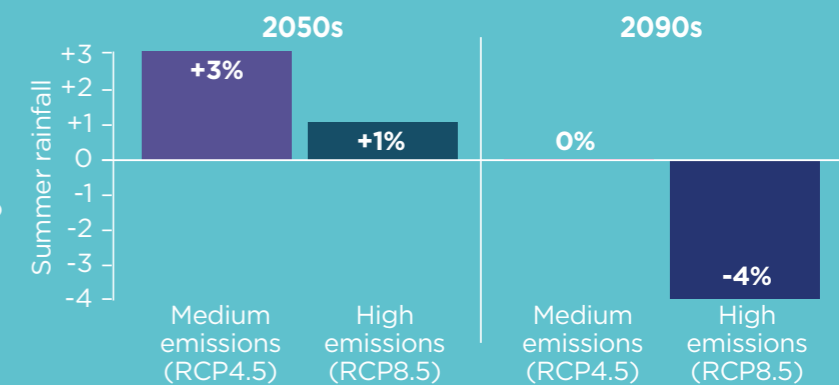
Tidal surge in Belfast, County Antrim in 2014.



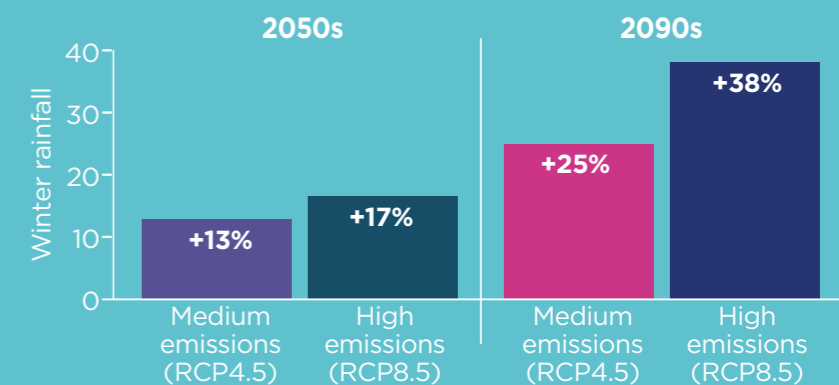
Annual temperatures are set to increase on average by between 1.9°C - 2.4°C by 2050*



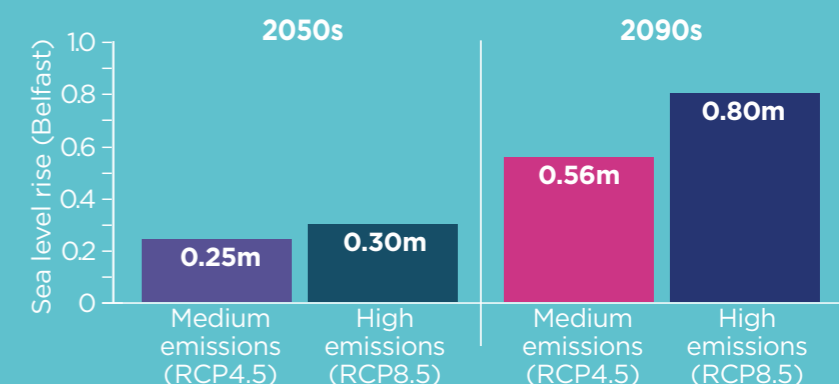
We can expect hotter drier summers, and while overall summer rainfall is projected to decrease, downpours will be more extreme**



Winter rainfall is projected to increase creating warmer wetter winters**



Projected sea level rise has the potential to impact our coastal towns and cities including Belfast



Climate change and sea level rise projections based on the 90th and 95th percentile respectively (compared to the 1981-2000 average).

*UKCP18 key results, available at <https://www.metoffice.gov.uk/pub/data/weather/uk/ukcp18/science-reports/UKCP18-Key-results.xlsx>.

**CCRA3 2021, Summary for Northern Ireland available at <https://www.ukclimaterisk.org/wp-content/uploads/2021/06/CCRA-Evidence-Report-Northern-Ireland-Summary-Final.pdf>.

READY FOR A CHANGING CLIMATE



CLIMATE RESILIENCE PRINCIPLES

We consider the following key principles when developing our approach to resilience, which are based on the UK Water Industry Research (UKWIR) Climate Adaptation Framework:

- use best available science to prepare for unpredictable extremes;
- assess interdependences and cascading impacts;
- integration of climate adaptation into decision-making and investments;
- build resilience with net zero in mind when taking investment decisions;
- take an innovative and adaptive approach;
- set clear responsibilities and have transparent communication and engagement; and
- ensure co-delivery for nature.

WARMER AND DRIER SUMMERS

Drier summers and a limited capacity to store an increase in winter rainfall means less water available through the year.

Climate change will increase the demand for water among both household and non-household customers in a drier, warmer climate. Our recent experience shows that our water demand surges by around 10% if the temperature exceeds 23°C more than three to four days. At 30°C we have seen demand surge by 30%. In future we can expect more times when these periods of water stress occur.



Low water levels at the Silent Valley reservoir, County Down in May 2020.

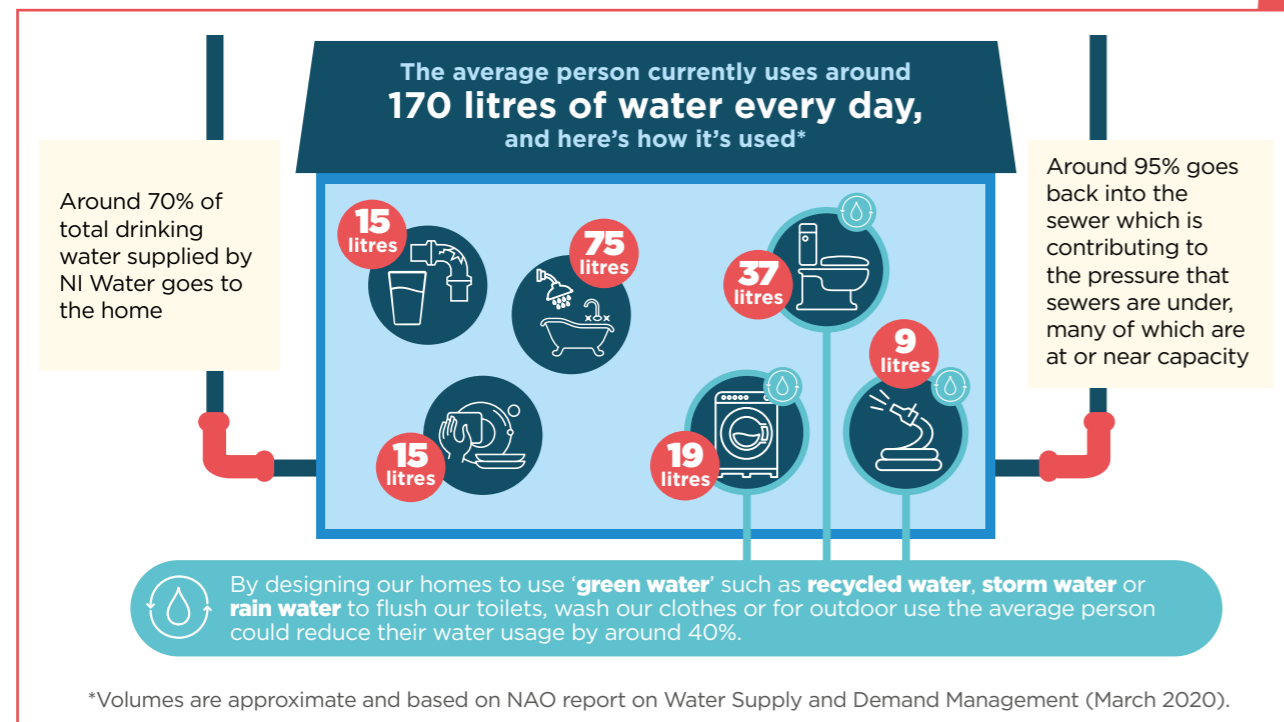
WARMER AND DRIER SUMMERS



PROMOTE WATER EFFICIENCY

Water efficiency can help to ensure that sufficient supplies of drinking water are available at times of higher demand.

CUSTOMER USE



Find out more at www.niwater.com/water-saving/

Around 70% of all drinking water supplied goes to customer homes. The average water use per person in Northern Ireland is around 170 litres per day. This compares to around 134 litres per day for metered customers and 174 litres per day for unmetered customers in England and Wales¹⁷.

We will work with government and stakeholders to find ways to encourage customers to use water as wisely as possible and to ensure homes are water efficient. This includes:

- Customer leakage - exploring new ways to help address leakage on customers' own pipes, which is estimated to be around 25% of total leakage. We will work with government departments and other stakeholders including the NI Housing Executive and Housing Associations to consider the use of grants;
- Water efficiency labelling - supporting the introduction of a mandatory water efficiency label to inform consumers and encourage the purchase of more water efficient products for both domestic and business use;
- Developer incentives - looking for incentives for developers to create water efficient homes and effectively deal with wastewater and rainwater;
- Building standards - encouraging local councils to adopt appropriate building standards on water efficiency;
- Water recycling - exploring how future building regulations can support the expansion of rainwater harvesting, water re-use and storage options; and
- Education - educating consumers on water efficiency and climate action.

¹⁷<https://www.discoverwater.co.uk/index.php?p=amount-we-use>

WARMER AND DRIER SUMMERS



WATER WHIZZ-KIDS

We are really proud of our unique education programme, which includes the Waterbus mobile classroom initiative. We have educated over 218,000 'water-whizz' school kids about the value of water for health, the economy and nature.

The Education Team has been visiting schools to deliver the key messages of water efficiency, water for health and bag it and bin it. The team has also developed several new lessons to engage pupils with the wonderful world of water including a climate change escape room and the wonders of peat bogs presentation.



Educating water whizz-kids through our Waterbus initiative.

METERING

Other UK water companies believe that water metering for domestic customers is essential in reducing water consumption. In England around 50%¹⁸ of households have a water meter and several companies are now investing in smart water meters.

The data shows that people with water meters use over 20% less water than unmetered customers¹⁹. Awareness of water usage is low. A study for CCWater (previously the Consumer Council for Water) last year monitored kitchen sink behaviours with video cameras and found 'significant discrepancy between what consumers tell us about their kitchen sink usage and what they actually do at the kitchen sink', with many participants unable to quantify their water usage.

While some water meters have been installed for new homes in Northern Ireland, none are used in practice.

We will support a conversation between us and government, customers, and regulators to explore whether domestic water smart metering can help people to use water more efficiently and support a more climate resilient water system.



¹⁸<https://www.water.org.uk/advice-for-customers/water-meters/>

¹⁹<https://www.discoverwater.co.uk/index.php?p=amount-we-use>

WARMER AND DRIER SUMMERS



INCREASE CAPACITY OF OUR WATER SYSTEM

Increasing the capacity of our water system improves our resilience to surges in water demand and drought.

We distribute drinking water to our customers through an extensive system

which includes over 20 drinking water treatment works, over 600 reservoirs (impounding and service) and a network of 27,000km of water mains.

We will continue to invest in increased water production capacity and new strategic pipelines to enable water to be transferred between regions.

WAT-ER UPGRADE!

We invested £13m in 2021/22 to improve the security of the water supply at Drumaroad water treatment works, Castlewellan, County Down. This major programme of work involved the construction of a new water storage tank. This treatment works is supplied by water from Silent

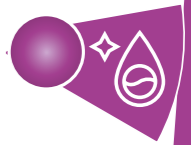
Valley reservoir and delivers around 140 million litres of water every day to over 200,000 homes in County Down and Belfast. It is having a positive impact on the lives of up to 540,000 people, a quarter of the Northern Ireland population, who can benefit from it, particularly in extreme weather.



Completion of the £13m investment at Drumaroad water treatment works in County Down to benefit a quarter of Northern Ireland's population.

<https://www.youtube.com/watch?v=leu7b81X4Wc&t=9s>

WARMER AND DRIER SUMMERS



ACCESS NEW SOURCES OF WATER

All our raw water is currently sourced from lakes and reservoirs that are above ground and then treated to provide drinking water.

There is a large source of water in the form of ground water that lies in naturally

occurring underground aquifers. Using boreholes, we can extract this high-quality water and make it available where it is needed most to produce drinking water. The aquifers can also be used to provide geothermal heat.

We will search out new, sustainable sources of raw water and explore geothermal heating opportunities.

'ROCK SOLID' SOLUTION TO HIGH QUALITY WATER

NI Water revealed a 'rock solid' solution to obtaining a sustainable water supply by tapping into Earth's most hidden asset, groundwater. A long term, resilient water supply is a top priority, which is why we are using boreholes to access this sustainable water supply.

Groundwater is perfect as it is stored underneath the Earth's surface and is a largely unused water source in Northern Ireland. It is also naturally filtered through rocks so requires minimal treatment to make it drinkable. NI Water is using solar panels for abstraction and treatment of the water which will offset electricity usage and activated filter media (recycled glass) to ensure it is treated to drinking standards.

Overall, this innovative solution will not only provide water in all weathers but reduces chemical use and greenhouse gas emissions.



Moneymore Borehole in County Derry/Londonderry.

WARMER AND DRIER SUMMERS



DRIVE DOWN LEAKAGE

Reducing leakage helps ensure there are resilient water supplies in the future. Lower leakage levels also help to reduce the greenhouse gas emissions associated with water production and reduce the volume of water that needs to be abstracted from the environment.

Leakage includes water lost from our 27,000 km of underground pipes and supply pipe losses from customers' pipes. Some leaks in water pipes are inevitable as pipes can wear out or be damaged by freezing weather or the weight of traffic on roads.

Total leakage in 2021/22 was 156 million litres per day against a target of 157 million litres per day. This level of leakage is around 25% of the water put into our distribution system and is enough water to fill just over 60 Olympic sized swimming pools.

Historically we have used engineering techniques to work out the sustainable economic level of leakage. This is the point at which the cost of fixing a leak outweighs the benefit. However, we recognise there is more we can do. We are exploring a range of new innovations to tackle leakage including satellite imagery and drones, alongside expanding our leakage team and upskilling staff on best practice detection and repair methods.

We estimate that around a quarter of leaks occur on customer properties, highlighting the importance of fixing any leaky taps and toilets in homes and other premises.

We will reduce leakage to the sustainable economic level of 150 million litres per day by 2027 and explore opportunities for further leakage reductions.

We are assessing the level of future leakage reduction as part of our Water Resource and Supply Resilience Plan, due for publication in 2023. The Plan will be based on the latest climate forecasts for Northern Ireland, taking into account the impact on greenhouse gas emissions and affordability.



Detecting leaks using a ground microphone.

INTENSE RAINFALL, RISING SEA LEVELS AND SEVERE STORMS



KEEP STORM WATER OUT OF THE SEWERS

Most urban areas in Northern Ireland, including road surfaces, are served by combined sewers that carry both wastewater and surface water - such a system would never be built today. Reducing the amount of surface water reaching the sewers can help reduce the risk of sewer flooding due to overcapacity.

We undertake storm water modelling to help inform investment needs in our wastewater system.

Climate change was not a factor when most of our sewers were installed. We need to design all improvements to existing sewers and the construction of new sewers with climate change in mind. We have taken account of the Water Industry Research (UKWIR) project on the impact of rainfall intensity on sewer design. Our wastewater design standards will be increased to account for latest climate change predictions. However well designed, our wastewater system will not be able to cope with all extreme rainfall events. Storm overflows will still be required.



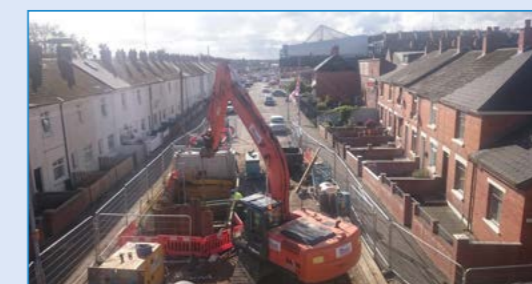
Storm water modelling.

Rainwater can be directed to water courses or ditches to address road drainage by natural means. We are working with our customers, communities, and key stakeholders (such as local councils and landowners) to create the green infrastructure to manage rainwater water run-off.

WINDSOR PARK STORM WATER SEPARATION

The existing 1930s combined sewerage system in the area did not have the capacity to take the increase in flow from the re-development of the Windsor Park Stadium and construction of the new Olympia Leisure Centre.

The project gave NI Water the opportunity to update the combined drainage system by the removal of around 70,000m² of existing impermeable area, reducing the risk of 'out of sewer' flooding and environmental pollution.



INTENSE RAINFALL, RISING SEA LEVELS AND SEVERE STORMS



Rainwater can also be slowed to help ensure our wastewater system is not overwhelmed. Examples include the creation of ponds with capacity to store the additional water resulting from

intense rainfall (what is often called Sustainable Drainage Systems or SuDS) so reducing and slowing the rainfall entering our sewers.

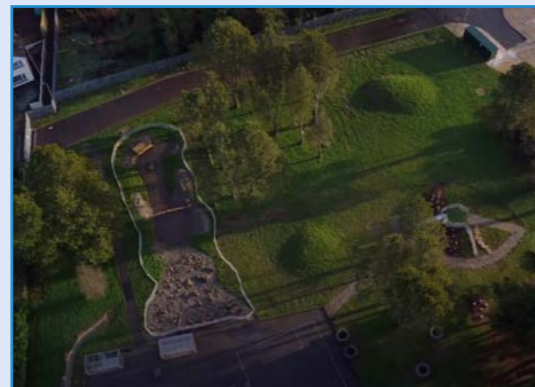
RAINWATER GARDEN AT CLANDEBOYE PRIMARY SCHOOL

The Rainwater Garden was constructed utilising funding from the Department for Infrastructure.

The rainwater garden is a simple concept, which collects water run-off from the school roof and playground area, which is collected in an underground storage tank disguised as a turtle.

When the water within the storage tank builds up to a certain level, a valve opens and allows the water to run down a channel, which will be used by the school children as a 'duck run' play facility.

The rainwater then travels into two split-level ponds within the rainwater garden area, which provides additional storage. This process reduces the rate at which the storm water reaches the local watercourse – Clandeboye Stream, lowering the risk of flooding in this area of Clandeboye.



We will undertake the following to keep storm water out of the sewers:

- undertake further storm water modelling;
- increase our wastewater design standards to account for the latest climate change projections; and
- use SUDS and green spaces such as designated flood plains to reduce the rainwater that gets into the sewers.

INTENSE RAINFALL, RISING SEA LEVELS AND SEVERE STORMS



STRENGTHEN OUR FLOOD AND STORM DEFENCES

Rising sea levels increases the risk of flooding for our assets that are located nearby. We are already starting to experience some effects.

We are carrying out work to assess the vulnerability of our assets and to put in place measures to protect them from extreme weather.

We will upgrade our design standards to enhance our business continuity and major incident response, and ensure that back-up solutions for our most critical solutions are adequate.

Further details on actions to address intense rainfall, rising sea levels and severe storms will be contained in our Drainage and Wastewater Management Plans due for completion by 2024/25.

BELFAST TIDAL SURGE

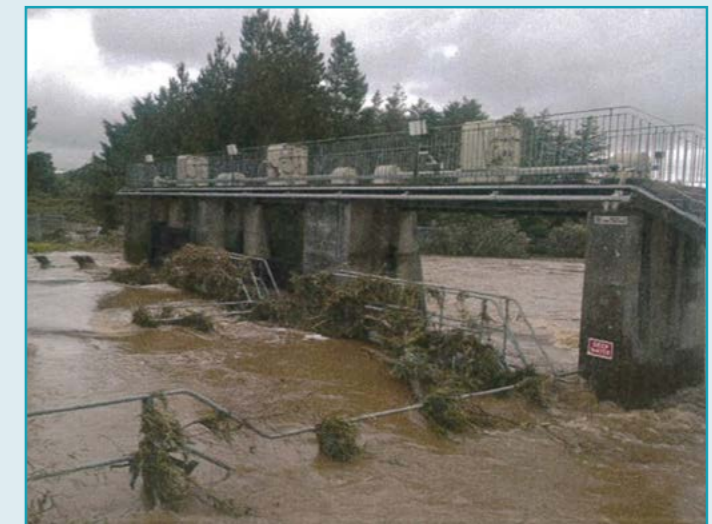
The highest tidal surges recorded within Belfast Harbour have occurred within the past 20 years, most recently in early January 2014. This 'near miss' flooding event was one of a number of 'near misses' within a relatively short time period (the five highest tidal surges have been recorded since 1994).

We can also expect more intense storms and higher winds that can cause damage and flooding to the facilities, power supplies and telecoms supplies needed to run the water and wastewater system.



NORTH WEST FLOODING

Following a one in 200 year storm event in 2017, the Faughan raw water pumping station used by Carmoney water treatment works was subject to flooding. The flooding rendered the station inoperable. We initiated a project to address the flood risk by reducing the impact of any future flooding at the pumping station. The construction of the £5m scheme has improved resilience against future flooding events and ensures security of supply from Carmoney water treatment works, which serves large parts of Derry City.





INTENSE RAINFALL, RISING SEA LEVELS AND SEVERE STORMS



INCREASE RESILIENCE OF OUR WASTEWATER SYSTEM

Intense rainfall increases the risk of flooding as our sewer system has historically been designed to capture rainwater.

And to reduce the chances of sewage flooding homes and businesses, our wastewater system, in common with wastewater systems around the world, was designed and built to release diluted sewage in emergency situations through combined sewer overflows across our wastewater system that flow out to rivers and the sea.

We will increase the capacity of our wastewater system to reduce the impact of intense rainfall events.

Society increasingly considers these flooding events to be unacceptable. We agree. A great example of how we can make the change is the £1bn 'Living With Water Programme', which will improve strategic drainage infrastructure in the greater Belfast area through a combination of traditional and nature-based solutions.

We will work closely with partners to deliver sustainable solutions that provide adaptation to climate change and will also, where possible, provide a range of benefits to communities such as improved green spaces.

Warmer drier weather impacts on the condition of wastewater in our sewerage system, making this more difficult to treat and increasing the compliance risk for discharges to watercourses, particularly after the first heavy rainfall.

We will assess the potential impact on our wastewater system as part of our Drainage and Wastewater Management Plans.

We deal with around 15,000 blockages of our sewers each year, over 11,000 of which could have been prevented. The most common cause of these blockages is the flushing of items which do not dissolve down the toilet such as wet wipes and the disposal of fats, oils and grease down the sink.

We will work with our customers to communicate what can be safely disposed down the sink or in the toilet.

DELIVERING A 21ST CENTURY DRAINAGE AND WASTEWATER SYSTEM FOR BELFAST

In 2021/22, the Infrastructure Minister published Living With Water in Belfast: An Integrated Plan for Drainage and Wastewater Management in Greater Belfast.

At £1.4bn over 12 years it is not a quick, or inexpensive fix. The Plan aims to deliver a long-term approach to drainage and wastewater management that will protect from flooding, provide a cleaner and greener environment and ensure that Belfast is open for business and investment. Over 50 engineers are working full time to deliver the construction works, which will include upgrading six wastewater treatment works and their sea outfalls, replacing pumping stations, building new tunnels and upgrading pipelines and sewers across the area.



Find out more at Living With Water Programme | Department for Infrastructure (<https://www.infrastructure-ni.gov.uk/sites/default/files/publications/infrastructure/living-with-water-in-belfast-plan-updated-apr22.pdf>)

INTENSE RAINFALL, RISING SEA LEVELS AND SEVERE STORMS

MAINTAIN CONTINGENCY PLANNING CAPABILITY

NI Water must ensure that the highest levels of services to customers are maintained regardless of disruptions to the infrastructure or facilities.

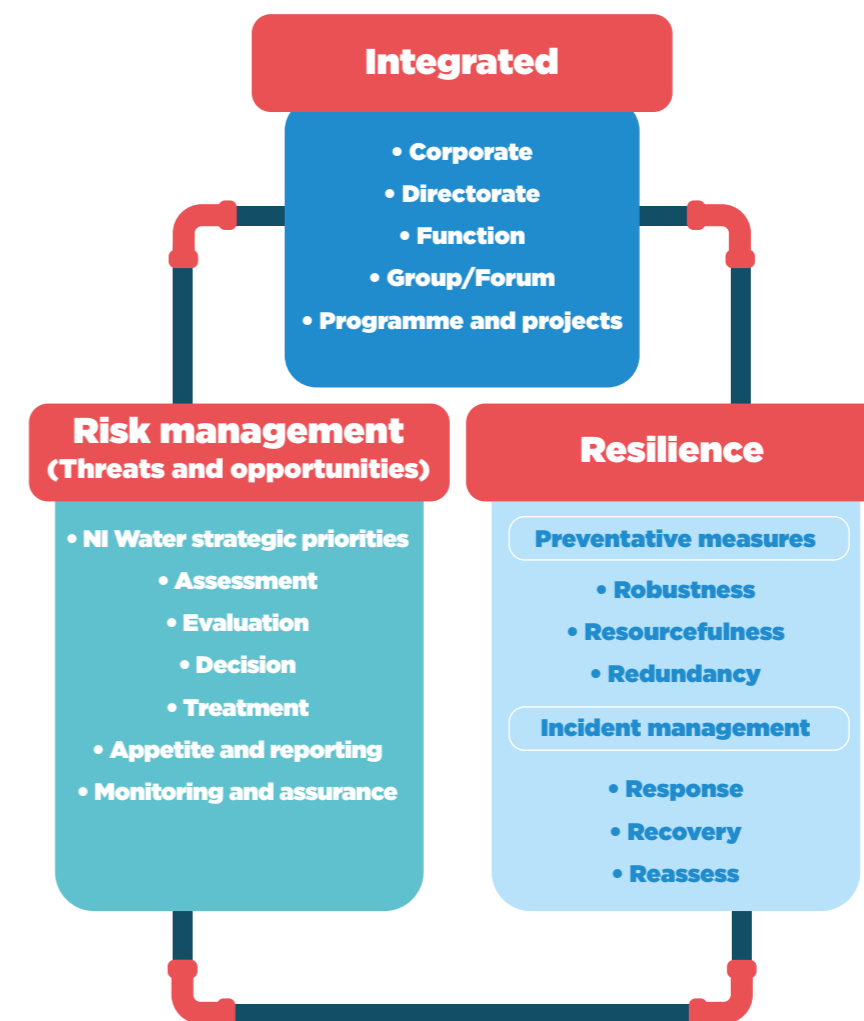
NI Water has a statutory duty to carry out risk assessments and to have robust major incident and business continuity arrangements in place to manage disruptions to the delivery of service and to have plans for recovery after the disruption.

NI Water uses an integrated approach to risk and resilience as shown below:

NI Water's major incident plan and business continuity management frameworks draw on the above approach and are continually being updated to reflect best practice and key learning points from annual testing, exercises, and previous incidents.

NI Water's commercial insurance programme forms part of our integrated risk and resilience model.

NI Water's integrated risk and resilience model

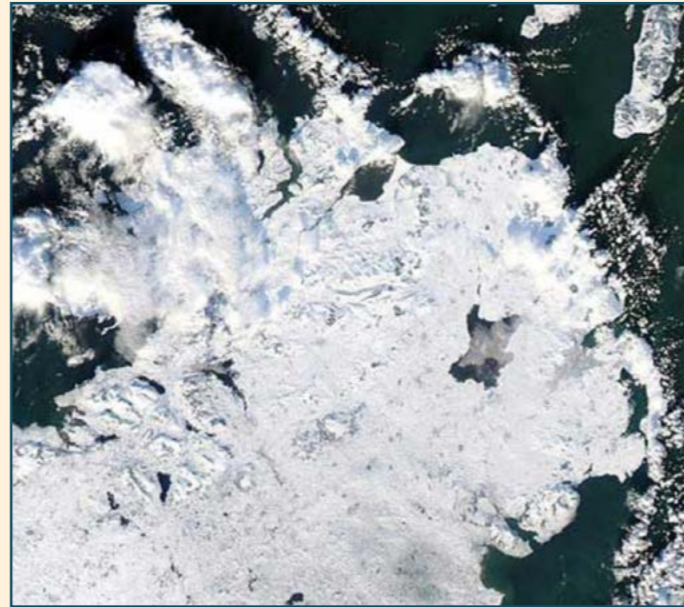


INTENSE RAINFALL, RISING SEA LEVELS AND SEVERE STORMS



PIONEERING PARAMETRIC INSURANCE

An example of an innovative approach to improving resilience is the implementation of parametric insurance. Following several significant freeze-thaw events, NI Water looked for an alternative insurance solution to enhance its ability to improve disaster response and recovery timeliness. Traditional insurance covers only structural damage from weather events with no aid for the response and recovery process. Parametric insurance pays on pre-agreed metrics such as temperature indices. It guarantees quick payment for valid claims as there is no need to investigate the circumstances in detail. NI Water's 'Freeze and Immediate Thaw' parametric was triggered in 2018, 2020 and 2021.



Freezing conditions in Northern Ireland in 2010/11.

We also put in place 'Drought' parametric insurance to cover prolonged high temperatures and lack of rainfall in 2021, which was triggered in the summer of 2021. We are developing a 'Flood' parametric insurance programme to cover the increased cost of working in water extraction and production.

This demonstrates the importance of having an effective insurance risk transfer solution to manage external risk factors that are beyond NI Water's control.

We will maintain our contingency planning capability to ensure the highest level of service to customers.

EXPLOITING THE FULL POWER OF WATER

USING OUR ASSETS FOR THE GREATER GOOD

The transition to a net zero, climate resilient economy requires greening both the generation of electricity and the way companies such as NI Water use it.

Generation technologies such as solar, wind, hydro, and hydrogen exist, as do the means to significantly increase the efficiency of power usage. The key is to find the way to coordinate and apply them.

NI Water can help to integrate more sustainable energy sources into our supply system and reduce the tax payer's subsidy for water services.

NI Water is our largest electricity user. Future electricity generation will be driven by the weather. NI Water will be rewarded by being flexible in our use.



Hydro pump storage schemes store water at height when energy is plentiful to generate electricity later.

The NI energy system will need to store energy when it is plentiful for subsequent use. NI Water will require large batteries for resilience and to operate efficiently.



Find out more at: <https://www.niwater.com/climatechange/power-of-water/>

EXPLOITING THE FULL POWER OF WATER

We launched the Power of Water Report in 2021/22 to set out a number of practical examples of how NI Water could play an important role in decarbonising the local economy.

Since our report, the Northern Ireland Government brought in the Climate Change (NI) Act 2022 which will drive the net zero and resilience transition across the region. NI Water is ready to play an active role in collaboration with stakeholders across NI in the delivery of the Government's net zero 2030 and 2050 targets. Our assets can act as a catalyst for transforming our energy system and achieving the target of 80% renewables in electricity consumption by 2030.

The decarbonisation agenda includes decarbonising the transport system, both public and private. Mostly that will be by electrification, but for heavy transport, including buses, sustainable fuels such as green hydrogen or biomethane offer a realistic alternative.

And there is also a need to find the means to reduce industrial emissions in production in areas such as cement, plastic and chemicals as well as re-imagining our agri-food sector.

We look forward to supporting the NI Government in drafting the sectoral plans for 2050, and the Climate Action Plan and Carbon Budget (2023-27) due by the end of 2023. No one sector can

deliver the sheer scale of investment required. Public, private and third sectors all need to work together to create the level of innovation and investment required to build a sustainable future.

And in Northern Ireland that is possible. We may be a small region on a small island, but we have at our fingertips the means to be an exemplar in the net zero economy.

We have a key natural resource - the wind. We have an all-island single electricity market committed to net zero. We have universities at the leading edge of enabling digital technology. What we now need to find is an agile way to harness administrative and governance systems designed for a different era to deliver the innovation, collaboration and urgency needed to make net zero a reality in Northern Ireland. Just as climate change does not respect institutional boundaries, neither should the response.

We will use NI Water's assets and capabilities as a pathfinder in helping to transform Northern Ireland's overall energy system and the pursuit of green growth and the 10X economy²⁰.

BOOSTING OUR SUPPLY CHAIN COLLABORATION

We are committed to reducing emissions and physical risk through collaboration with our supply chain partners.

The supply chain represents all the suppliers, contractors, and service providers that are used by NI Water to build and keep the business operating. It also extends to our partnerships with universities, water industry and other research organisations. We recognise that we need to work together to seek new innovative approaches to reducing emissions and improving resilience.

We also recognise the need to provide support and guidance for our suppliers to improve their climate resilience and reduce their carbon emissions.

We regularly engage with our supply chain through a variety of channels, which range from specific events to ongoing business as usual contacts. One of our primary channels is our annual supplier event, which has been running for nearly a decade. This event provides a great opportunity to engage with our new and existing suppliers.



NI Water staff and supplier representatives involved in the battery project.



Innovating with our supply chain partners to identify ground breaking processes and data intelligence techniques for water and wastewater treatment.

We will undertake the following actions in relation to our supply chain:

- develop our Scope 3 assessment for goods, services and construction materials through direct capture of supplier emissions data. We will start with our most carbon intensive suppliers and consider the extent to which this will apply across our whole supply chain;
- expand our supply chain mapping to improve our understanding of the impact of key physical climate risks to our supply chain;
- undertake engagement with our supply chain, providing support and guidance for our suppliers to reduce their carbon emissions and improve their climate resilience;
- embed changes to procurement processes, incorporating carbon assessment as part of the process;
- appoint suppliers who will not only support us on our journey to net zero, but are also on a similar trajectory thereby supporting delivery of our Climate Change Strategy; and
- engage and partner with centres of excellence on climate action such as the Centre for Sustainability, Equality and Climate Action at Queen's University Belfast and the Centre for Sustainable Technologies at Ulster University.

²⁰A 10X Economy is a transformational mind-set centred on what can be achieved with the right levels of ambition. The concept embraces innovation to deliver a ten times better economy with benefits for all. <https://www.economy-ni.gov.uk/publications/10x-economy-economic-vision-decade-innovation>

CLIMATE GOVERNANCE

We are committed to best practice climate governance to ensure robust oversight and successful delivery of our Climate Change Strategy.

BOARD

The NI Water Board is responsible for climate strategy and sets the risk appetite for climate change.

The Board has been actively involved in the development of this Climate Change Strategy and approved the final version for publication.

The Board is supported by the Risk Committee and the Audit Committee on climate risk management and climate reporting such as the development of the Climate Risk Model and TCFD disclosures in our Annual Integrated Report and Accounts.

Climate change is one of NI Water's Principal Risks and the Board receives regular updates on the management of climate change risks throughout the year.

The Board also provides leadership on climate change. The Chair of the Board launched the Power of Water Report in November 2021 at the International Convention Centre in Belfast. The hybrid event as attended by over 300 stakeholder representatives and received widespread media coverage.



Attending the Power of Water Event at the ICC Belfast were NI Water's Chairman, Dr Len O'Hagan and NI Water's Chief Executive, Sara Venning.

EXECUTIVE COMMITTEE

Responsibility for the delivery of this Climate Change Strategy and management of climate risks rests with the Executive Committee. One of our Executive Directors is the designated Senior Responsible Owner for climate change and is supported by other Executive Directors and designated senior managers and their teams across relevant areas of the business. The Executive Committee receives regular updates on the climate strategy and the management of climate risks. This included a series of workshops to review progress on the development of NI Water's Climate Change Strategy, the Climate Risk Model and building momentum on the Power of Water Report.

CLIMATE GOVERNANCE

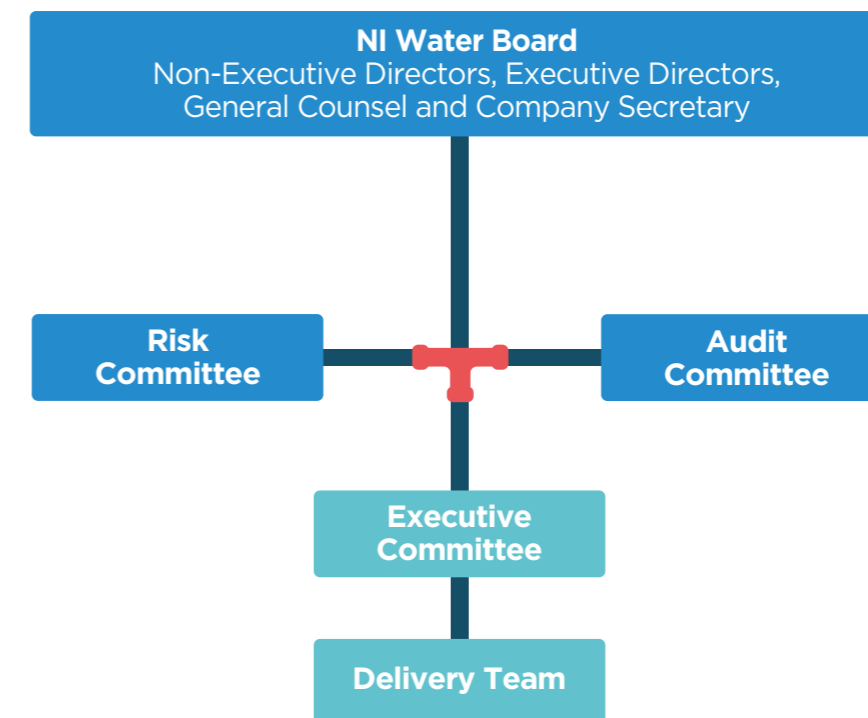
DELIVERY TEAM

NI Water actions and action owners from across the business have been identified to ensure traction and delivery of the Climate Change Strategy.

NI Water has engaged climate change subject matter specialists to assist in developing this Climate Change Strategy. The specialists are supporting NI Water on the implementation of the detailed action plan which accompanies this strategy.

DELIVERY RISKS

Delivery risks have been identified and will be managed by the Delivery Team. These risks will be reported to the Executive Committee, Risk Committee, Audit Committee and Board.



CLIMATE DECISION MAKING

We recognise that the climate is changing, and we need to prepare and implement new approaches now to be prepared for this change.

We have started to consider future climate in our Water Resource and Supply Resilience Plan and Living with Water Programme. We know our assets are more exposed to risk and we need to make plans to mitigate, as well as needing to do more to understand our exposure and the impact to our assets.

While we do have some understanding of the carbon impacts of our investment choices, this does not take account of future operational emissions and how these will change over time, and we know that we need to do more to understand our emissions over the full construction and operational life. Looking to the long-term whole life carbon avoids deferring hard decisions into the future.

Developing our understanding of our whole life carbon impacts and climate resilience baseline is the first step to improving our approach to addressing climate change.

The next step is to use this improved understanding to implement and embed new approaches and activities in practice to improve our process, assets and wider business.

NATURE BASED DECISION MAKING

We are committed to putting nature at the heart of our decision making to drive the most optimal solutions for climate and biodiversity. The Water Industry Forum, working with Water UK's Environment Policy Advisory Group members including NI Water, produced a set of principles in 2020/21 on using natural capital type approaches in investment decision making. The principles are seen as a best practice guide for water companies and regulators to help design and apply natural capital type tools, ultimately with the aim of making more sustainable investment decisions and delivering better outcomes for customers and the environment. Over 2021/22, the Forum has been developing further guidance on driving best value decision making using a multi-capitals approach (financial, natural, social, human, manufactured and intellectual capital). We have piloted the use of multi-capitals decision making on the Living With Water Programme and have a number of activities within our Climate Change Strategy to support multi-capitals decision making. We plan to roll out the new approach across our investment programme to inform our next business plan in PC27 (2027-33).



CLIMATE DECISION MAKING

We will undertake the following in relation to climate decision making:

DEVELOP OUR UNDERSTANDING OF WHOLE LIFE CARBON AND CLIMATE RESILIENCE

- undertake climate scenario analysis to understand the climate hazard projections to the end of the century focusing on temperature extremes, changes in rainfall, sea level rise, and wind;
- undertake an assessment of how these climate hazards will impact on our assets by developing risk analysis for asset types and undertaking interdependencies mapping;
- understand the impact of climate on water resources by updating the Water Resource and Supply Resilience plan;
- understand the impact of climate on wastewater by ensuring resilience is included in long-term wastewater strategy;
- understand the impact of climate on other systems and services by understanding climate impacts on revenues, operating costs and investments;

FURTHER INTEGRATE CLIMATE CHANGE INTO OUR DECISION-MAKING

- establish a methodology and tools for developing whole life carbon assessments for all new investments. We will integrate the assessments into our investment decision making and into our future net zero planning;
- integrate carbon into our multi-capitals approach;
- carry out a feasibility exercise on internal carbon pricing mechanisms to ensure the full carbon impacts of our projects are reflected in financial appraisals; and
- develop climate change guidance for purchased and capital goods and services such as asset design specifications and standards.

CLIMATE REPORTING

We are committed to best practice climate reporting for a regulated Government Owned Company.

TASKFORCE ON CLIMATE RELATED FINANCIAL DISCLOSURES

Large sections of the UK economy are transitioning towards mandatory climate change reporting against the Taskforce on Climate related Financial Disclosures (TCFD).

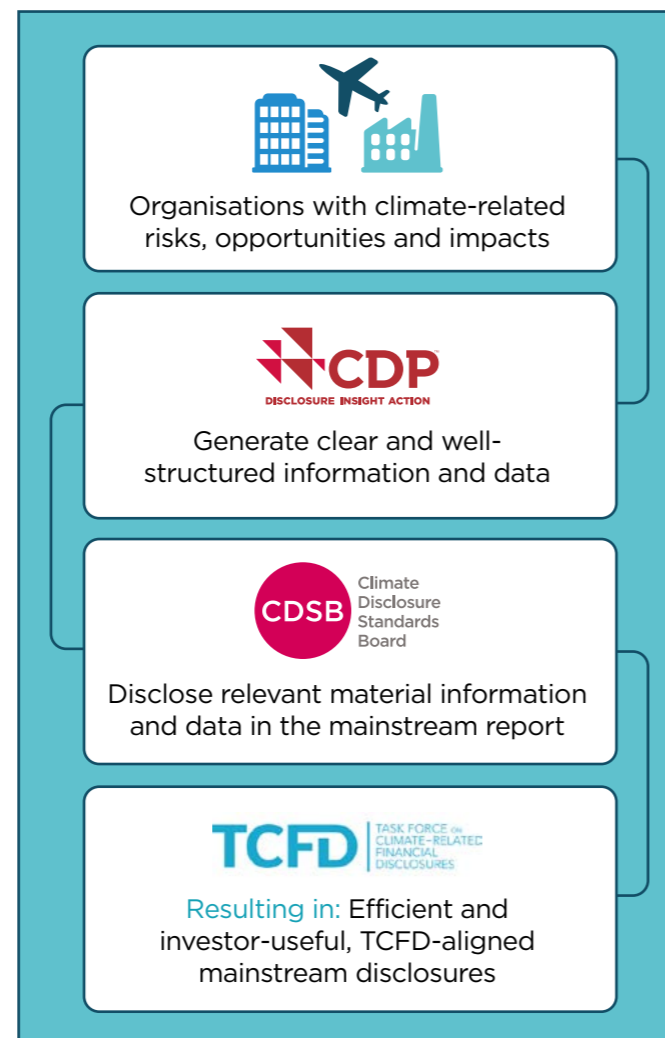
This Climate Change Strategy supports NI Water's progress towards compliance with the Taskforce for Climate-related Financial Disclosures by 2023/24.

We have undertaken a gap analysis with TCFD and identified a number of actions to take as part of our transition towards mandatory TCFD reporting for large companies in 2023/24. NI Water has registered with Carbon Disclosure Project (CDP) and used the CDP questionnaire to prepare the TCFD climate disclosures. The CDP aligns with the Climate Disclosures Standards Board (CDSB) framework which helps corporates identify material information and data. The CDP and CDSB are part of a climate disclosure framework, which ultimately supports corporate disclosures under the TCFD framework.

CLIMATE CHANGE ACT (NORTHERN IRELAND) 2022

The Climate Change Act (NI) 2022 was enacted in June 2022. The Department for Agriculture, Environment and Rural Affairs (DAERA) assisted by NI Environment Link and Climate NI hosted workshops in November 2022 on its implementation. This centres around the development of a Climate Action Plan and five-year Carbon Budget (2023-2027).

The Climate Action Plan and Carbon Budget are primarily focussed on greenhouse gas emissions and cover the various sectors across the economy. Infrastructure spans a number of these sectors (wastewater, energy, buildings, land use etc). The Climate Action Plan will contain proposals and policies aimed



at support a 38% reduction in emissions by 2027, from 1990 levels (which represents a 22% reduction from 2019 emissions levels). These proposals and policies will also aim to support the 2030 target of 48% lower than the baseline and align with the 2040 and 2050 targets as stipulated in the Act. The 2040 target is to be set in line with the 2050 target of 100% lower for carbon dioxide and 46% lower for methane. The Climate Action Plan may also cover climate adaptation and public body reporting.

We continue to engage with DAERA and the Department for Infrastructure to support the development of the Climate Action Plan and Carbon Budget.

CLIMATE REPORTING

IFRS SUSTAINABILITY STANDARDS

The IFRS Foundation has established a new International Sustainability Standards Board (ISSB) that will develop a comprehensive global baseline of sustainability disclosure standards. A prototype for the new standards has been published, which aligns with the TCFD framework. The prototype is accompanied by sector specific disclosure guidance. The UK government has confirmed it intends to incorporate these standards into the UK corporate reporting framework. We continue to monitor the development of the standards and the implications for our climate reporting.

SCIENCE BASED TARGETS



Targets are considered 'science-based' if they are in line with what the latest climate science deems necessary to meet the goals of the Paris Agreement – limiting global warming to well below 2°C above pre-industrial levels and pursuing efforts to limit warming to 1.5°C. We have committed to set a science-based target with the Science Based Targets Initiative (SBTi), which defines and promotes global best practice in science-based target setting.

INDEPENDENT ASSURANCE

NI Water engaged independent advisors to review our approach to climate and wider sustainability reporting. We will obtain independent assurance on our climate reporting aligned to ISO14064 and will consider the ISAE3000 public assurance approach and methodology.

We will undertake the following in relation to climate reporting:

- comply with the TCFD climate disclosures by 2023/24;
- support delivery of the Climate Action Plan and Budget;
- comply with relevant sustainability standards;
- obtain verification of our climate targets by the SBTi; and
- consider the need for additional independent assurance on our climate reporting.



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