



Pupils from Loughries Primary School helping to plant the new reed bed at Loughries wastewater treatment works, County Down.

Strategic areas of focus

More resilient network

Sustainable solutions

Keep it clear

Towards net zero

Sustainable development goals



Principal threats/opportunities



Page 76 Read more about principal threats and opportunities.

Strategic performance indicators

Nature	Unit of measurement	Target 2022/23	Actual 2022/23	Pass/Fail	Target 2023/24
Reduction in pollution incidents - sewage (high and medium)*	Number	11	9	Pass	10
Wastewater compliance (% population equivalent served)**	%	94.65	99.19	Pass	94.65
Reduction in number of properties at risk of out of sewer flooding (cumulative over 2021-27 period)	Number	0	7	Pass	20
Reduction in carbon footprint. Relates to reduction in carbon emissions measured in tonnes of carbon dioxide equivalent (tCO ₂ e)	%	***	***	***	***

* Calendar year target.

** Calendar year target. Based on pre-announced rather than un-announced regulatory sampling at the treatment works and the reported wastewater compliance doesn't incorporate flow compliance for the wastewater treatment works or the sewer network.

*** Annual targets to be set in 2023/24 aligned with our new Climate Change Strategy.

More resilient network

Reducing sewer flooding

Flooding and the risk of flooding can constrain economic development, increase the cost of insurance, and pollute our natural environment. Most of the urban areas of 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.

Climate change has contributed to an increase in the intensity and frequency of rainfall. Heavy rainfall can cause the sewers to become full of water and the sewage to back up in the system. Many of our traditional systems include 'combined sewer overflows', which were designed to prevent out of sewer flooding/damage to properties by discharging this excess water directly into the rivers or streams, bypassing the treatment works.



Find out more about climate resilience at <https://www.niwater.com/climatechange/strategy/>

Our PC21 Business Plan includes ambitious infiltration and storm water removal targets aimed at reducing risk of property flooding, enhancing our natural environment, and facilitating economic growth. This programme is underway with the commencement of investigation studies and modelling. NI Water reports the area of surface area removed through direct capital investment, such as storm separation or Sustainable Urban Drainage System projects.

We have removed 93,098m² of impermeable surface area by the end of 2022/23. This is lower than the cumulative target of 729,080m² at the end of 2022/23. However, the removal of incidental storm separation is expected to increase in line with the increase of our wastewater infrastructure programme throughout PC21. A major storm separation scheme will be completed at Ravenhill Avenue, Belfast removing around 88,200m² of storm water from the combined system. This represents

4% of the 2,187,240m² of storm water to be removed from the combined system over PC21.

Investigation work will take place over 2023/24 on storm removal to enable NI Water to meet its targets for PC21. This work will be linked to capital schemes addressing unsatisfactory intermittent discharges from sewer overflows and wastewater treatment works, out of sewer flooding and new development. It is anticipated that the PC21 mid-term review will confirm changes to the PC21 discharge programme.

We are forecasting to remove 57 properties from the register of properties at risk of flooding over PC21. Seven properties were removed from the register by the end of 2022/23 in excess of the target. It is forecast that the Ravenhill Avenue scheme will contribute to us achieving our target in 2023/24 by removing a further 11 properties from the register in 2023/24.



NI Water break ground on the new £4.8m Ballyronan wastewater treatment works, County Derry/Londonderry.

NI Water break ground on the new £4.8m Ballyronan Wastewater Treatment Works

The new £4.8m wastewater treatment works at Ballyronan, County Derry/Londonderry will deliver important environmental benefits, such as enhancing the water quality in Lough Neagh and has been designed to accommodate development in the area for the next 25 years. The existing treatment works, which was constructed in the 1970s, remains in operation while the new infrastructure is being installed at the same site.

NI Water Project Manager said: "This major investment includes the installation of state-of-the-art, fully enclosed, treatment tanks, along with advanced electrical and mechanical systems to provide a robust wastewater treatment solution. This will help enhance the water quality in Lough Neagh, bringing many benefits to the local community well into the future."

Chair of Mid Ulster District Council's Development Committee, added: "I was delighted to have the opportunity to tour the site and witness the start of this major £4.8m investment first hand. This new multi-million pound facility is good news for Council, as it will enhance wastewater services for customers in the Ballyronan area and beyond, whilst accommodating future development in the area."

Completing the picture on wastewater compliance

We recognise the need to improve how we measure wastewater compliance. The current regulatory monitoring programme is based on pre-announced rather than unannounced regulatory sampling at the treatment works and the reported wastewater compliance doesn't incorporate flow compliance for the wastewater treatment works or the sewer network. This provides an incomplete picture of environmental compliance and protection. We are working with the NIEA and other stakeholders to reform the wastewater compliance model to improve compliance across the whole wastewater system. This is known as the water regulation reform programme.

A Wastewater Regulation Compliance Reform Group has been established with senior management representation from NI Water and NIEA. This working group will act as the interface between NIEA and NI Water on the delivery of wastewater regulation reform over PC21. It is recognised that the outcome of the proposed regulation change will result in new evidence, which will highlight non-compliance across our wastewater infrastructure.

The Group is developing a plan for the reform programme and reviewing the wastewater Statement of Regulatory Principles and Intent. This will take account of the regulatory approach for recognised underinvestment, a no detriment approach to dealing with development constraints

Living with Water Programme (LWWP)

Living With Water is a new multi-agency approach to the provision of drainage and wastewater infrastructure, which promotes holistic and integrated solutions that achieve multiple benefits at reduced cost and disruption. Open spaces and watercourses can be used to enhance the environment, promoting recreational opportunities and by sustainably managing water to help reduce flood risk. This is commonly referred to as blue/green infrastructure. In addition to blue/green infrastructure it is recognised that significant investment is also required in more traditional infrastructure, like sewers, pumping stations and upgrades to our wastewater treatment works.

and reform of wastewater compliance assessment. Compliance assessment methodologies will be developed over 2023/24, along with clear messages on the impact of these changes. Identification of investment needs for compliance reform will also be considered as part of the PC27 Business Plan.

We continued our wastewater regulatory monitoring programme over 2022/23. This sampling programme is helping to build up performance data, providing insight to treatment works' performance. We plan to establish an independent wastewater compliance team, which will assist with providing assurance on the management of wastewater assets.

Event and duration monitors are being installed on prioritised combined sewer overflows, with 279 monitors in beneficial use. We are validating the data from these monitors and establishing reporting processes for PC27. The monitors will enable examination and optimisation of long-term spill performance trends by helping to understand unusual spills that require either immediate interventions or long-term investment planning. This work is supported by GIS mapping and reporting tools. We are also focussing on the delivery of capital upgrades at works, unsatisfactory intermittent discharges from sewer overflows and wastewater treatment works, and completion of the prioritised programme of drainage area plans.

The £1.4bn Strategic Drainage Infrastructure Plan for Belfast was published by the DfI in 2021/22, with several significant flood alleviation projects carried out in Belfast over 2022/23. A similar approach is being explored for Derry/Londonderry, which NI Water plans to support. We are also working with the DfI to develop the NI version of the Water UK 'Drainage and Wastewater Management Plan Framework' to help sustainably manage our drainage infrastructure.



Find out more at <https://www.infrastructure-ni.gov.uk/topics/living-water-programme>

Sustainable solutions

Every day we recycle wastewater from 743,000 homes and businesses before safely returning it to the rivers and sea. Traditional treatment works are carbon intensive, requiring a lot of energy, concrete and chemicals to ensure treated wastewater can be safely released back to the environment. We are committed to a more sustainable approach to wastewater treatment and have deployed a number of innovative approaches such as lower energy technologies and nature-based solutions.

Sparking innovation at Ballykelly wastewater treatment works

NI Water recently completed a project at the new Ballykelly wastewater treatment works to situate a new solar panel system. This system has now been upgraded with the addition of NI Water's first battery energy storage system - the first of its kind for NI Water.

The primary treatment on the site utilises the well-established activated sludge process as a robust and effective treatment solution. The works effluent then passes by gravity through an integrated constructed wetland, which is a nature based zero energy treatment process.

The wetlands on the site use a mix of native reed bed plant species and solar UV radiation to treat the wastewater effluent. The treatment process has been developed through previous NI Water projects at Stoneyford and Castle Archdale and the large size of the wetland ponds introduces a habitat for wildlife and insects as well as a net carbon sink, while enabling effective wastewater treatment. Around 400 trees will be planted in the wetland, contributing to NI Water's tree planting goal.



Battery and solar panel system at Ballykelly wastewater treatment works, County Derry/Londonderry.

The solar PV system enables the works to operate during the daytime on locally generated renewable energy for most of the year. In a first for NI Water, excess solar energy is stored in the new 134kWh onsite lithium-ion battery storage system. Also, during winter months, it can be used to store cheaper off-peak energy for use during the daytime. The battery energy system was specified and designed in house and will be an excellent learning and development opportunity for NI Water to harness this emerging technology on future projects.

The project scooped a 2022 International Green Apple Environment Award and was named Infrastructure Project of the Year at the 2022 ICE Sustainability Awards and the CEF Construction Excellence Awards.



NI Water and contractor staff receiving the Infrastructure Project of the Year award at the CEF Construction Excellence Awards in 2022.

Boosting biodiversity

As part of our corporate commitment to the All-Ireland Pollinator Plan, we engaged the help of over 60 NI Water colleagues in 2022/23 to map areas within our wastewater assets base. Our volunteers visited around 30 sites and mapped over 20 sites on the mapping portal. This work has allowed us to meet and exceed our pollinator plans for the year. The volunteers also contributed to another citizen science project, which counted the number of pollinators in an area at one time. These data sets help us understand the environment better on our landholding.

We engaged with DAERA farm business development groups to get best pesticide practice message to farmers, reaching around 70 farmers. This is supplemented by our rush control videos, in conjunction with our partners at CAFRE and DAERA, on how farmers can keep pesticides out of raw water. We held rush control events to raise awareness of the adverse effects on water quality caused by the MCPA herbicide. These events involved a farm visit and technical discussions around pesticides, followed by information on ocal water quality.

By continuing our negotiations with Forest Service to obtain more land for peatland restoration, we will be able to help improve designated site habitat condition in Areas of Special Scientific Interest (ASSIs), Special Areas of Conservation (SAC) and Special Protections Areas (SPAs) such as the Garron Plateau, in the water catchment for Dungonnell water treatment works, County Antrim. We are also partnering with the Mourne Heritage Trust in our Mournes landholding on path erosion to improve the current unfavourable habitat condition in the Eastern Mournes ASSI.



Keep it clear

We deal with around 11,500 blockages of our sewers each year. The most common causes 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. These combine to form a solid mass in the pipes underground, meaning less waste can pass through the pipe. If enough waste cannot pass through, it leads to flooding in homes, business or our natural environment.

Our customer campaigns over 2022/23 have focussed on the 'Bag it and Bin it' messages. This included a focus on fats oils and greases along with what should and should not be put down the loo and sink. Our campaigns benefitted from a partnership with the Education Authority's 'Period Poverty' campaign, providing an opportunity to highlight the importance of binning sanitary items.

Wet Wipe Monster is 'Flushing Out' the wet wipes!

NI Water's Wet Wipe Monster is taking on blockages and 'flushing' out the worst monsters in Northern Ireland's blocked sewers. NI Water's Head of Environmental Regulation explains, "We are hoping our Wet Wipe Monster will help us spring clean our sewers and 'flush' out the worst offenders in a bid to reduce blockages. The main enemy of sewers is the build-up of baby wipes, cotton buds and sanitary products. These form together into a ball of 'rags' causing blockages and out of sewer flooding. The Wet Wipe Monster message is simple, 'only flush Paper, Poo and Pee!'"



NI Water Wet Wipe Monster with one of our staff and pupils from Parkhall Primary School, County Antrim.

Find out more at <https://www.niwater.com/fats-oil-and-grease-fog/>

Towards a zero carbon and climate resilient business

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.

At NI Water, we’re committed to delivering a net zero, climate resilient future for all our customers. Our Climate Change Strategy was published in May 2023 and sets out how we can 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 growth through a just transition. We have challenged ourselves to go further and faster than the net zero 2050 targets set by law. NI Water is committed 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. We can also play a strategically important role in helping society to decarbonise by planting one million trees; building more renewables on our land; kick-starting our hydrogen economy; and providing sources of warmth for district heating schemes.

We know that we can’t do this alone. Climate change is a systematic problem for Northern Ireland and requires systematic solutions. We also need holistic solutions that address the changes of the global energy crisis and growing pressures on public sector funding that we experience as a government owned company. To do this, we will need support from all of our stakeholders, a positive policy and regulatory environment from government and regulators, innovation from our supply chain, reduced water use from our customers, and collaborative planning from councils and other partners.

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 is in accordance with the Companies (Strategic Report) (Climate -related Financial Disclosure) Regulations 2022.

NI Water is transitioning towards TCFD compliance by 2023/24 and have further developed our disclosures over 2022/23. The TCFD framework focuses on four key elements, supported by 11 recommended disclosures:



TCFD elements	TCFD recommended disclosures
Governance	a. Board oversight
	b. Management role
Strategy	a. Climate-related risks and opportunities
	b. Impact on the organisation's businesses, strategy and financial planning
	c. Resilience of the organisation's strategy
Risk Management	a. Risks identification & assessment processes
	b. Risk management process
	c. Integration into overall risk management
Metrics and Targets	a. Climate-related metrics in line with strategy and risk management process
	b. Scope 1, 2, 3 greenhouse gas metrics and the related risks
	c. Climate-related targets and performance against targets

Our progress against the disclosures in the TCFD framework is shown below:

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 takes overall responsibility for overseeing the management of risks associated with and sets the risk appetite for climate change. 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. Find out more about our Principal Risks on page 76.

The Board also provides leadership on climate change. The Board has been actively involved in the development of the Climate Change Strategy, which was approved by the Board in 2022/23.

The Audit Committee and Risk Committee supports the Board on climate risk management and climate reporting and received quarterly updates on these areas and the development of the tools to support the TCFD disclosures. Refer to the reports by the Committee Chairs at page 108 and page 110.

Executive Committee

Responsibility for the management of climate risks rests with the Executive Committee. The Director of Asset Delivery is the designated Senior Responsible Owner for climate change and is supported by 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.

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 supporting NI Water on the implementation of the detailed action plan which accompanies this strategy. 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.

The Executive Committee received quarterly updates on the management of climate risks over 2022/23.

Strategy

Focusing on climate is not new for NI Water. Since our formation in 2007, we have made significant improvements in water resilience for customers, delivering higher levels of leakage detection, sustained investment in water mains and water efficiency initiatives. We have been developing a Water Resilience and Supply Plan from 2012 and have been partners in the Living With Water Programme to improve strategic drainage infrastructure from 2014. Since 2015, we have reduced our operational carbon emissions by well over 50%, through alternative fuel projects to reduce fossil fuels used in our treatment processes, delivering solar farms, restoring peatland, and planting new woodlands.

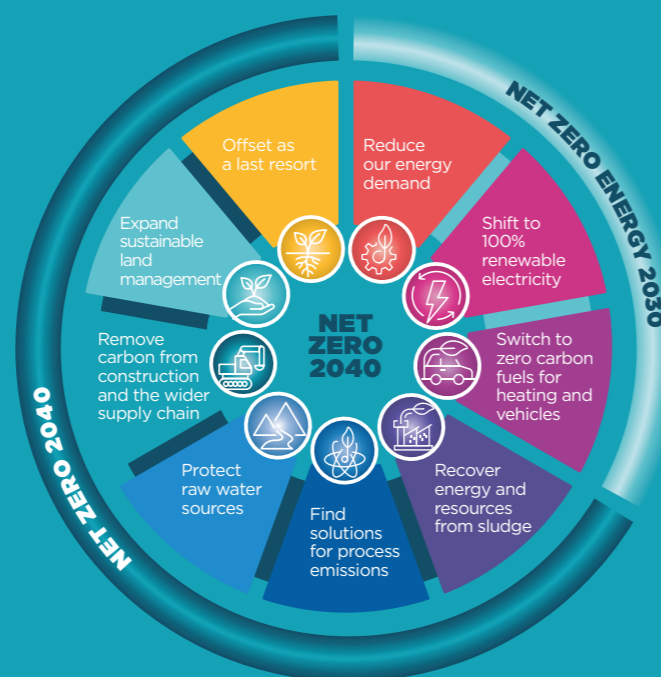
Corporate Strategy

Our Corporate Strategy sets the overall strategic direction on climate action in the medium term across PC21 (2021-27) and over the longer-term (2021-2046). Getting to net zero for emissions and ensuring we are resilient to climate change are essential elements within our Corporate Strategy through our strategic priority on nature. We set out our goal to fully exploit innovative approaches to energy and new technology to reduce our carbon footprint and ultimately become carbon neutral. The long-term corporate strategy also recognised the need for a sustained step change in levels of investment to improve asset resilience. We recognised the need to develop a Climate Change Strategy to provide the targets that support this ambition, and begin to identify, co-ordinate and prioritise actions on net zero and climate resilience and align with the TCFD recommendations.

Climate Change Strategy

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.



Read more about our Climate Change Strategy at <https://www.niwater.com/climatechange/strategy/>

Risk management

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.

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:

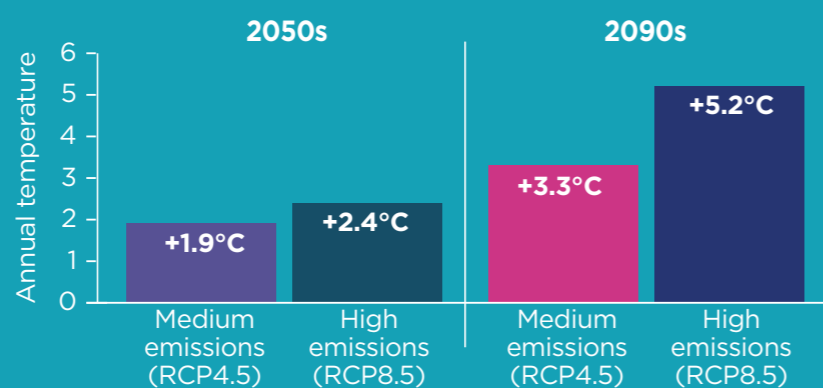
- Warmer and drier summers causing a surge in water demand and risk of drought; and
- Intense rainfall, rising sea levels and severe storms overwhelming our sewers and leading to internal flooding of homes and pollution of water courses, putting our low-lying coastal sites at risk of flooding, and causing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

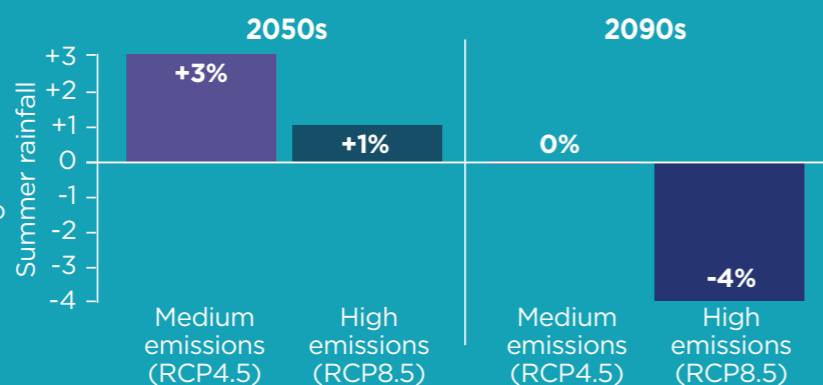
As an operator of critical national infrastructure, we must be ready for climate change. We are moving our business to a higher state of readiness by planning for two degrees of temperature rise by 2050 and preparing for four degrees by 2090. As part of this, we will ensure that our business continuity plans, major incident plan and commercial insurance programme are aligned with this Climate Change Strategy.



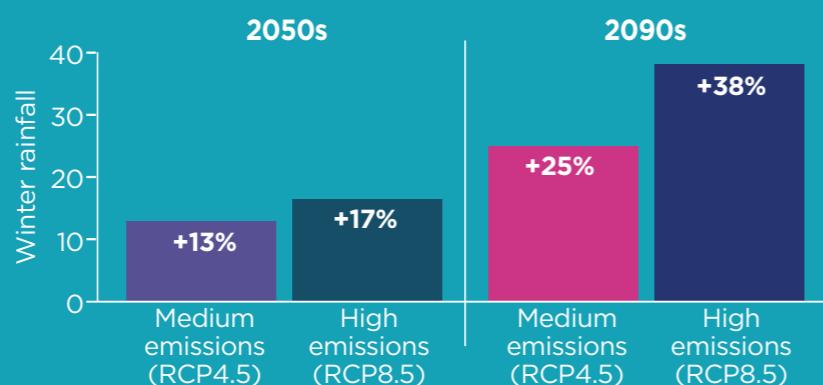
Annual temperatures are set to increase on average by between 1.9°C - 2.4°C by 2050*



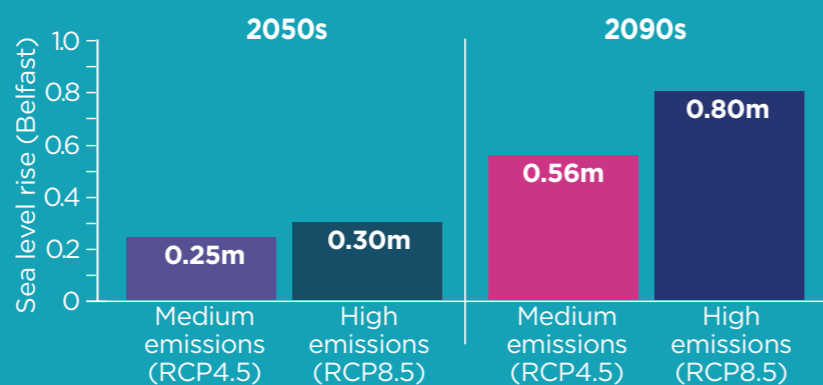
We can expect hotter drier summers, and while overall summer rainfall is projected to decrease, downpours will be more extreme**



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>.

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

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.

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.

The model points to illustrative trends for physical and transitional risks over the next three decades. These show transitional risks

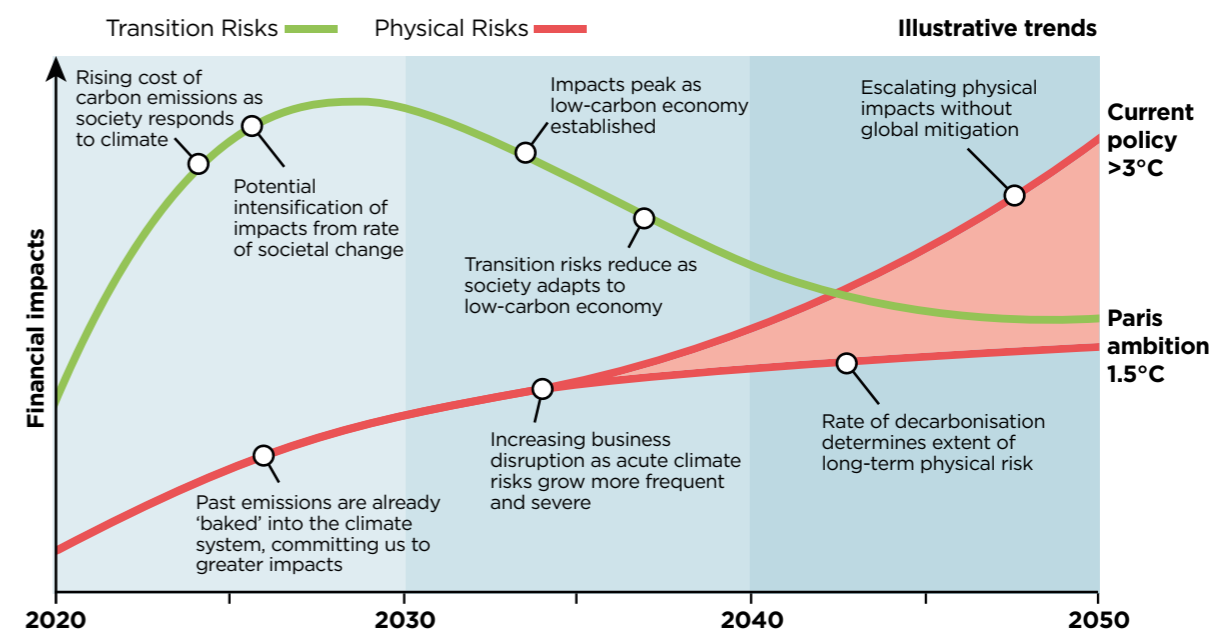
peaking over the next decade before being overtaken by physical risks. These trends reflect that companies and their owners face significant risks from both action and inaction.

The magnitude of the short-term financial impacts over the PC21 period excludes the costs to transition NI Water to net zero. This aligns with the approach taken for the PC21 Business Plan and will likely result in a material increase in the financial impacts once factored in for PC27 (2027-33) and future Price Controls.

The modelling exercise identified several areas for development, which have been incorporated into the Climate Change Strategy action plan:

- transition (policy) risk – more granular assessment of scope 3 supply chain emissions as part of setting of science based targets;
- transition (technology) risk – quantifying the cost to decarbonise the business by 2040 and funding via the Price Controls; and
- physical risk – assessment of granular asset level impacts to inform long-term asset resilience as part of our long-term resilience planning for clean water (updated for latest climate change projections by 2023/24) and wastewater (to be developed by 2023/24).

We are undertaking a re-run of the model over 2023/24 to inform our TCFD disclosures.



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

Our principal risk on climate change is being aligned with the analysis on physical and transitional risks and the Climate Change Strategy. This will further support the embedding of climate risks through our corporate, directorate and programme/project risk and resilience management systems.

The long-term viability assessment has been updated for the latest analysis on climate risks. Find out more at page 116.

Metrics

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

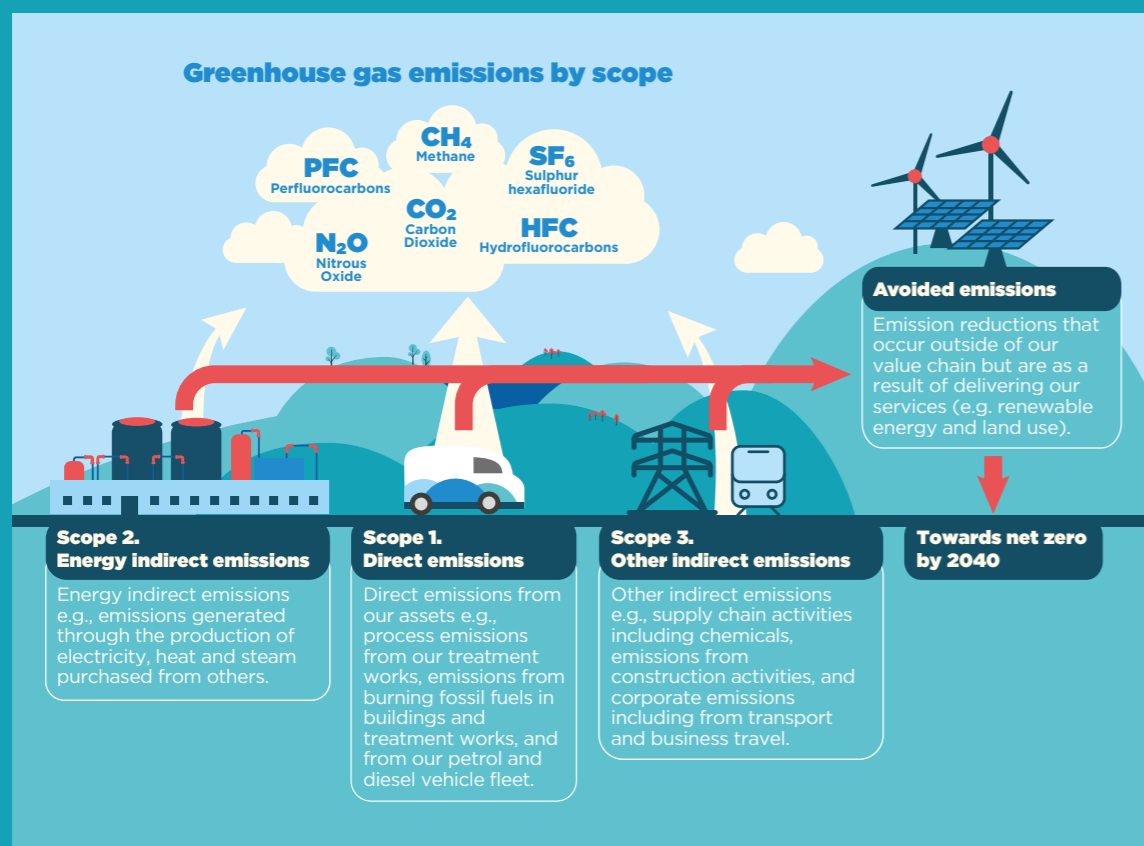
The Directors have considered in the Section 172(1) statement how their decisions support the long-term climate resilience of the business and the consideration of the climate impact of its operations. Find out more at page 123.

We have also considered the impact of climate change on the financial statements across areas such as provisions, impairment, contingent liabilities and accounting judgements and estimates. Find out more at page 145.

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 baseline is made up of 2020/21 emissions from our activities, and subdivided into scopes 1, 2, and 3. The reported emissions for our

2020/21 baseline and the subsequent two years (2021/22 and 2022/23) are shown below:

NI Water greenhouse gas emissions	2022/23 tCO ₂ e Market based***	2022/23 tCO ₂ e Location based****	2021/22 tCO ₂ e Market based***	2021/22 tCO ₂ e Location based****	2020/21* tCO ₂ e Market based***	2020/21* tCO ₂ e Location based****
Scope 1 direct emissions*						
Direct emissions from burning of fossil fuels	1,912	1,912	1,783	1,783	1,850	1,850
Process emissions from our treatment plants	7,185	7,185	10,927	10,927	8,180	8,180
Transport: Company owned or leased vehicles	2,418	2,418	2,390	2,390	2,500	2,500
Total scope 1 direct emissions	11,515	11,515	15,100	15,100	12,530	12,530
Scope 2 energy indirect emissions*						
Grid electricity purchased**	21,263	49,652	25,724	51,802	35,634	66,430
Total scope 2 energy indirect emissions	21,263	49,652	25,724	51,802	35,634	66,430
Total scope 1 and scope 2 (gross of avoided emissions)	32,778	61,167	40,825	66,902	48,164	78,960
Avoided emissions						
Avoided emissions from renewable electricity exported	(281)	(281)	(468)	(468)	(605)	(605)
Avoided emissions from renewable electricity purchased	N/A	(30,983)	N/A	(28,082)	N/A	(28,490)
Total avoided emissions	(281)	(31,264)	(468)	(28,550)	(605)	(29,095)
Total scope 1 and scope 2 (net of avoided emissions)	32,497	29,903	40,357	38,352	47,559	49,865
Scope 3 other indirect emissions						
Purchased goods and services	80,310	80,310	48,550	48,550	43,110	43,110
Capital goods and services	64,560	64,560	45,310	45,310	33,210	33,210
Waste generated in operations	9,410	9,410	8,780	8,780	14,650	14,650
Employee commuting, homeworking and business travel	1,850	1,850	1,650	1,650	1,660	1,660
Fuel and energy	6,200	6,200	6,450	6,450	7,360	7,360
Transport and distribution	3,330	3,330	2,640	2,640	1,120	1,120
Leased assets	100	100	100	100	100	100
Total avoided emissions	165,760	165,760	113,480	113,480	101,210	101,210
Total reported emissions (net of avoided emissions)	198,257	195,663	153,837	151,832	148,769	151,075

*The scope 1 and scope 2 emissions relating to Omega and Kinnegar Public Private Partnership contracts have been reclassified to scope 3 emissions.

**Market-based emissions from grid electricity purchased derived on a pro-rata basis using 2021/22 emissions.

***Market-based figures use emission factors specific to the actual electricity purchased.

****Location-based figures use average grid emissions to calculate electricity emissions.

*Note that any adjustments to the 2020/21 baseline reported in our Climate Change Strategy is due to improved understanding.

NI Water greenhouse gas emissions intensity	2022/23	2021/22	2020/21
Total location-based reported emissions per megalitre of treated water (tCO ₂ e/MI)	0.887	0.608	0.684
Total location-based reported emissions per megalitre of sewage water (tCO ₂ e/MI)	1.487	1.019	1.148

The total reported emissions increased from 151,832 tCO₂e in 2021/22 to 195,663 tCO₂e in 2022/23, an increase of 29%. The increase in total reported emissions was primarily due to increased capital investment. There was a resulting increase in greenhouse gas emissions intensity.

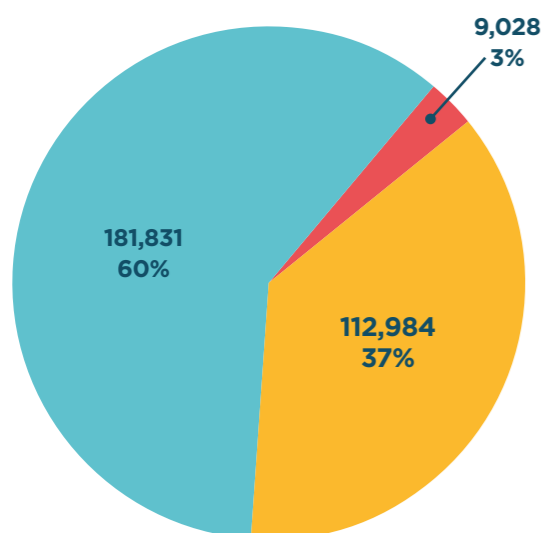
2022/23 is the first year NI Water is reporting scope 3 emissions. The data is based on assumptions and latest understanding.

We plan to develop our methodology and processes in future years.

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

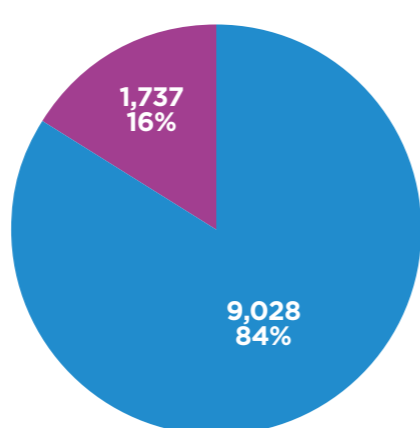
NI Water's electricity consumption and renewable energy generation is shown below:

Total electricity consumption 2022/23 (MWh)



- Grid electricity purchased (excluding renewable energy)
- Grid electricity purchased - renewable energy
- Renewable electricity generated and used
- Total electricity consumption 303,843MWh**

Total renewable electricity generated 2022/23 (MWh)



- Renewable electricity generated and used
- Renewable electricity generated and exported to the grid
- Total renewable electricity generated 10,765MWh**

ISO 14064 (Part 1)

NI Water has appointed a UKAS accredited verifier to review its carbon reporting against ISO 14064 (Part 1). This ISO standard covers the quantification and reporting of greenhouse gas emissions and removals. The verification work covers the 2020/21 baseline in Climate Change Strategy and the subsequent two years (2021/22 to 2022/23).

CDP

NI Water has registered with CDP and uses the 2022/23 CDP questionnaires for Companies and Public Authorities. 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.



Targets

NI Water is committed 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. We will refresh this baseline for any structural changes that have a significant impact such as changes in calculation methods, outsourcing or insourcing. Changes to the baseline will be guided by materiality thresholds.

Over 2023/24, we will finalise the decarbonisation trajectories to inform annual targets aligned with our Climate Change Strategy.

Science Based Targets Initiative (SBTi)

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. The SBTi is a partnership between CDP, the United Nations Global Compact, World Resources Institute (WRI) and the World Wide Fund for Nature (WWF). NI Water has registered with the SBTi to signal its commitment to setting science-based targets and automatically joined the Business Ambition for 1.5°C and Race to Zero campaigns. NI Water has two years in which to submit its targets to the SBTi for validation.

Future developments in 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 final version of the standards was published in June 2023 and will replace the TCFD framework. 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. We plan to undertake a gap analysis with the standards over 2023/24.

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 are engaging with DAERA and the Department for Infrastructure to support the development of the Climate Action Plan and Carbon Budget, which are to be finalised by December 2023. As part of this engagement, we submitted a response to the draft Climate Action Plan and Carbon Budget in 2022/23, highlighting the different approaches to greenhouse gas reporting between the water sector and Government. This includes the use of different bases of carbon accounting (carbon consumption versus carbon production) and different baseline years. We have commissioned a reconciliation between greenhouse gas reporting in the water sector and reporting under the Act. The reconciliation will be shared with DAERA and the DfI and will be reflected in our submission to the consultation on the Climate Action Plan and Carbon Budget.

The Act also requires DAERA to make new regulations, which will set mitigation and adaptation climate reporting duties on specified public bodies. NI Water has been identified as a public body under the meaning of the Act. NI Water has issued a response to the DAERA consultation on public body reporting.