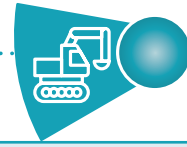


NET ZERO 2040



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.

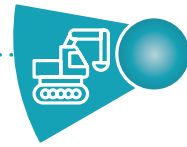
The first ICAT project is focused on installations at our service reservoirs, where treated water is stored locally for customers before use. Using smart instrumentation, programmable logic controllers (PLC's) in conjunction with our telemetry system, we are able to monitor and automatically control 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.



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.