

# Introduction

## by Chairman and Chief Executive of NI Water

Addressing climate change is the moral and practical challenge of our times. Not just for the health of our planet, but for the health of our children and grandchildren.

As the beneficiaries of the fossil fuel era, coming generations will expect us not just to have dealt with the consequences of climate change, but also to have put in place a sustainable future, including here in Northern Ireland.

Doing that, however, means being clear about three things: what needs to be done; the policy drivers required to make it happen; and the individual and collective role of organisations such as NI Water, in pursuing that net zero, sustainable future.

### First, what needs to be done.

To build a zero-carbon economy there is a clear need to green both the generation of electricity and the way companies such as NI Water use it. The generation technologies - solar, wind, hydro, hydrogen - exist, as do the means to significantly increase the efficiency of power usage. The key is to find the way, collectively, to apply them.

That includes de-carbonising the transport system, public and private. Mostly that will be by electrification, but for heavy transport, including buses, sustainable fuels such as green hydrogen 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 agrifood sector.

To achieve all this there needs to be a clear sense of direction in public policy, as well as a recognition of the need to fully embrace all the available economic, social and natural capital. 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 world.

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.

And it is in that spirit that this report has been written. What it details is work in progress, a contribution to the conversation, not the final word.

What it does underline, however, is the potential for NI Water's assets to become a catalyst for transforming our energy system.

Northern Ireland has made huge progress in recent years in transitioning from fossil fuels to renewable energy, helped by our status as one of the windiest parts of Europe.

Half our electricity now comes from renewable sources, but we are still dependent on fossil fuels to maintain supply when the wind doesn't blow, or the sun doesn't shine. In addition, we still waste valuable resources by turning off wind turbines when demand is low, at night-time for example.

It is that paradox we need to address. Collectively we need to create much greater flexibility in the way we generate, store and use energy. Using existing, proven technologies NI Water is working towards a range of potential answers.

Our Intelligent Operations Centre will use advanced data analytics to actively control when and how much electricity we use. As the biggest consumer of electricity in Northern Ireland this will help Northern Ireland Electricity Networks balance supply and demand at peak times.

Our 3,000 sites spread across Northern Ireland also have the potential, planning policy permitting, to host batteries which can store electricity from renewable sources and feed it into the grid and local networks as required.

Our reservoirs could also be used not just to store water, but also as a source of energy which could be released at critical times of the year when demand exceeds renewable energy supply.

More radically, results from our recent Hydrogen and Oxygen Pilot at Kinnegar Wastewater Treatment Works (WwTW) have shown how NI Water's early investment in electrolysis has the potential to be a real energy game-changer.



The supply of green hydrogen that electrolysis produces could help start the shift away from our historical dependence on diesel to power Northern Ireland's public transport, including buses, and heavy goods vehicles - and improve our air quality in the process.

Equally significant, however, the Kinnegar Pilot confirms that the oxygen 'by-product' that electrolysis produces could increase the capacity of some of our wastewater treatment plants by 25%. Whilst more work needs to be done, that is a significant development in helping us think about how we address the constraint on growth in too many of our towns and cities.

Taken together what these projects confirm, is that change is possible, if collectively we can agree and implement a common approach. NI Water is all too aware that we cannot deliver a sustainable future on our own and will need to keep working with our partners across government, the other utilities, the regulator, business and the third sector. This report is intended to help facilitate those conversations - now all of us must innovate, collaborate and act with urgency.

**Dr Leonard J. P. O'Hagan CBE DL Chairman & Sara Venning CEO**