

northern ireland
water



Delivering what matters

Big, bold, positive ideas on how NI Water can help society address the Climate Emergency





**We are facing a
climate emergency**

Overview

We are facing a climate emergency and now more than ever we need to take action. NI Water supports a healthy population, flourishing natural environment and a growing economy, so what can we do to help address the serious threat that the climate crisis poses?

We can play a strategically important role in helping society to decarbonise by:

Planting 1 million trees

Helping to reduce Northern Ireland's requirement for fossil fuel generated electricity by building more renewables on our land

Playing a pivotal role in doubling Northern Ireland's renewable generating capacity

Opening a network of Green Fuel Stations to kick-start our hydrogen economy

Helping the Gas Network remain relevant in a decarbonising world

Providing sources of warmth for District Heating Schemes

We can make nearly all of this happen using 3rd party funding, whilst at the same time - **lowering costs for water and electricity customers.**

Planting one million trees

As the second biggest landowner in Northern Ireland, we have ambitious plans to deliver a large-scale planting programme of one million trees across **11,300 hectares** of our land. Over the last decade, NI Water has planted over **150,000** trees in some of our 24 drinking water catchments in Counties Antrim and Armagh.

Trees help to improve water quality, capture carbon, mitigate floods and enhance the natural environment.

NI Water is the second biggest landowner in Northern Ireland, after the Forest Service, owning 11,300 hectares of land.

Northern Ireland is one of the least wooded regions in Europe, with just **8 percent** of woodland cover compared with the European average of **37 percent**. Working with the Woodland Trust and Forest Service to harness their expertise and existing

funding mechanisms, we can deliver a diverse range of native trees to encourage our flowers and fauna to flourish.

Planted over
150,000
trees

Our ambition
is to plant
1 Million
trees

Reduce Northern Ireland's requirement for fossil fuel generated electricity by building more renewables on our land

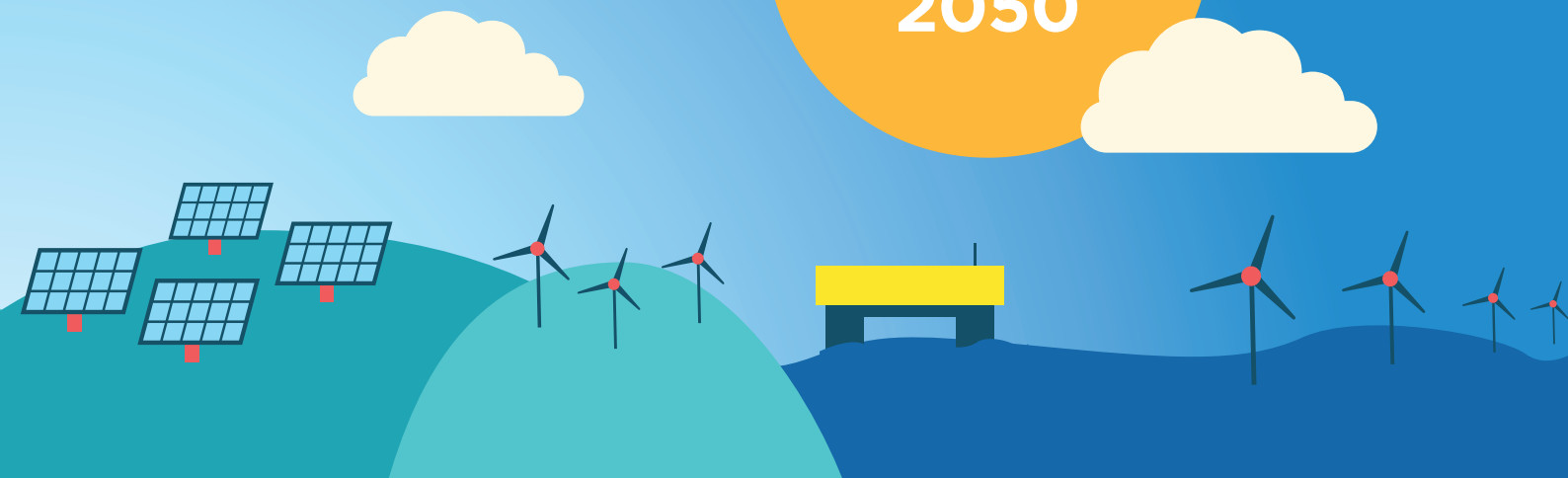
NI Water can help reduce Northern Ireland's requirement for fossil fuel generated electricity and cut society's harmful CO₂ emissions. This can be done by working with planners and the local community to place renewable generation at a select number of suitable sites.

With third party expertise and funding, this could deliver as much as **200 megawatts** of output – equivalent to one third of a typical power station's capacity. The income from leasing the associated land will also generate around **£2m-£3m** of income per annum, helping to keep the cost of water services down and easing the funding-pressure for government. So, using NI Water's land can help to generate more green energy.



100%
electricity
consumption
from renewables
by 2027

**Carbon
neutral by
2050**



Doubling Northern Ireland's renewable generating capacity

To provide the green power for the increasing adoption of Electric Vehicles and to start to decarbonise the heating for homes and places of work, Northern Ireland needs to double its renewable generating capacity in the next ten years.

To do so effectively will require the intermittency of supply that accompanies renewables to be addressed. This can be done by deploying large scale batteries across the province. The sites selected will need to have major electricity grid connections.

Northern Ireland needs to double its renewable generation by 2030

These are hard to obtain and expensive to create but the good news is that NI Water already owns over 3,000 widely distributed grid connected sites. The major sites could be used to deploy batteries. The income from their operation would not only help to reduce the costs for water services but also ensure that electricity customers will not have to pay an energy company to replicate these existing assets. Electricity and water customers are the same people - why should they have to pay twice?



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



3,000 widely-distributed
grid-connected sites

**NI Water is
uniquely placed
to compete
strongly**



**Opportunity to lower
costs for water
and electricity
customers.**

Opening a network of green fuel stations

In the first phase of decarbonising transport, fast-charging services for electric vehicles will be limited by electricity network constraints. NI Water's grid-connected sites, located near all our major towns and benefiting from low electricity

costs, will provide the fast charging necessary for our fleet. These sites may also be able to offer fast-charging facilities to other essential service vehicles in the public and private sector.

*NI Water produces **c.90,000** tonnes of operational **CO₂** per year in the treatment of water and wastewater.*

It is expected that electric cars will be the main means in reducing harmful emissions from transport, however, it is not anticipated that lithium batteries will be the solution for large heavy

vehicles that travel significant distances such as sludge tankers, longer-distance buses, tractors, agri-food tankers and HGVs. These are much more likely to benefit from hydrogen as a fuel source.



Hydrogen Production & Storage

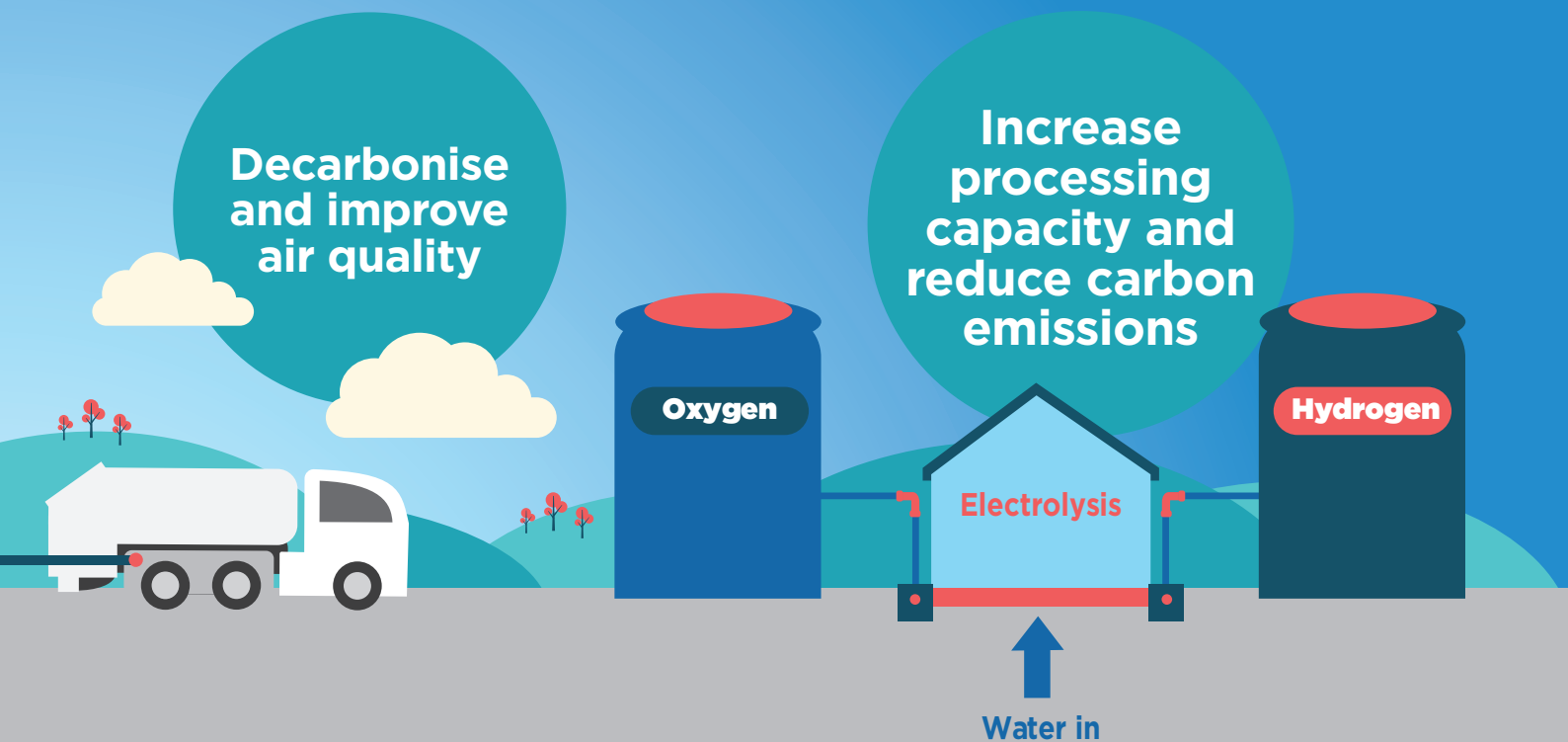
Producing and storing hydrogen could be central to our decarbonisation journey in Northern Ireland. The key to producing hydrogen is accessing on-site generated renewable electricity during the day and low cost wind farm energy at night when overall electricity demand is limited. The early production of hydrogen at

a wastewater treatment works could help improve processing capacity, reduce carbon emissions and improve flexibility in the electricity grid. Electrolysis splits hydrogen from oxygen and it may be possible to use that oxygen to significantly lower the expensive electricity costs incurred in the wastewater treatment process.

Enable more wind generation and improve flexibility in the electricity grid

Producing hydrogen is also a good fit for our society's ambition to see renewable generation in Northern Ireland double by 2030. 85% of our green electricity comes from wind today and this is likely to remain so as renewable capacity expands. The challenge is what to do at night time when the requirement for electricity is low. Already 15% of wind generating

capacity at night is curtailed. This means that expensive wind turbines are turned off. Electrolysis capacity at night time could use this surplus electricity to produce hydrogen more affordably. Rather than paying for the curtailment of wind turbines, electrolysers could be key in building wind farm investor confidence as hydrogen becomes more important.



Helping the gas network remain relevant in a decarbonising world

Natural gas, which is mainly methane, is not green and will need to be phased-out or replaced with a green alternative. Historically, town gas had significant quantities of hydrogen, around 60%, so we know that hydrogen can meet our household needs if the distribution system is configured appropriately. Work is now underway by Keele University to confirm that up to 20% of the gas for our homes could become hydrogen without changing our current gas fittings.

The supply of green hydrogen from NI Water sites could help the gas network to signal how it might migrate and remain relevant in a decarbonising world. We are assessing how many of our sites are adjacent to the gas network.

Help green, alternative fuels to flourish



Providing sources of warmth for District Heating Schemes

The heat that comes from the organic matter at a wastewater works combined with hot water from showers, baths, dishwashers, and washing machines, could provide a valuable source of warmth. For example, our Belfast wastewater sites are close to housing, government buildings, the harbour estate and other potential customers with an interest in decarbonising their source of heating.

In Great Britain heat obtained in this way is also being used in the agri-food sector to reduce carbon emissions, create jobs and increase resilience by bringing overseas food production to the UK.

The electrolysis process required to produce hydrogen also creates heat that can be captured and used to feed a district heating scheme. For example, producing hydrogen at scale for buses and HGVs, could supply heating to many of Belfast's key buildings.

Build a greener, more resilient and prosperous future



Sustainable Development Goals



We live in a resource constrained world and have a responsibility to ensure that our planet earth is sustainable for those who come after us. The United Nations has developed 17 goals to deliver a more sustainable world by 2030 and we are proud to play our part in supporting delivery of at least twelve of these goals.

Our strategy helps deliver a healthy and thriving population, a growing economy and a flourishing natural environment – in short – delivering what matters. The strategy centres around five strategic priorities (Customer, Water, Economy, Nature and People), which set out how we will deliver our purpose and vision.

Within our strategic priority of nature we are focused on five of the sustainable development goals which underpins our ambitious strategy to help society address the climate emergency.



Signatory
Climate Action
Pledge NI

NI Water has signed the Climate Action Pledge

We've committed to reducing our greenhouse gas emissions by 50% by 2030.

For further information please visit niwater.com/climatechange



Facebook: Northern Ireland Water



Twitter: @niwnews



YouTube: Northern Ireland Water



Instagram: northernirelandwater

