

Cambridge Waste Water Treatment Plant Relocation (Phase Three Consultation): Carbon

By 2030 Anglian Water will become an operationally net zero carbon business and we will have reduced the carbon used in building and maintaining our assets by 70 per cent. Anglian Water co-led the development of the water industry's sector-wide Routemap to Net Zero which guides the carbon objectives of the Cambridge Waste Water Treatment Plant Relocation Project, together with Anglian Water's own [Net Zero 2030 strategy](#).

Introduction

To limit the most damaging impacts of climate change, society needs to reduce greenhouse gas emissions and adapt to the current and future changes in the climate. We were the first water company to set ambitious targets on reducing both capital and operational carbon. We've exceeded our 2020 goals and are on track to reach, and help others to reach, net zero carbon by 2030, as well as reducing carbon used in building and maintaining our assets by 70 per cent against a 2010 baseline, by the same date.

You can also read more about our carbon management here: [Carbon management \(anglianwater.co.uk\)](#)

Anglian Water's 2030 net zero strategy

Achieving net zero means we will reduce the greenhouse gas emissions from our operations as far as possible and ensure that overall we have no impact on greenhouse gases in the atmosphere. Any residual emissions that we cannot avoid or reduce will be counterbalanced from 2030 by an equivalent sequestration of gases – and we'll do this in our region wherever possible, so that the benefits can be felt in the East of England.

Our net zero strategy impacts all of our business operations and those of our supply chain. It requires a flexible approach and the exact steps we will take in our journey will require extensive collaboration with our supply chain, our peers, government and regulators.

Our strategy is centred on:

Maximising energy efficiency and renewable energy generation and storage

- Procuring green electricity
- Decarbonising our vehicle fleet
- Maximising the value of biogas
- Managing process emissions
- Opting for alternative fuels
- Developing our offsetting strategy for residual emissions, prioritising in-region offsets with co-benefits (e.g., tree planting, use of wetlands, marshes, and grasslands).

Our plans to build a modern, low carbon waste water treatment facility helping Greater Cambridge to grow sustainably

Anglian Water is planning to build a modern, low carbon waste water treatment plant for Greater Cambridge. The new facility will provide vital services for the community and environment, recycling water and nutrients, producing green energy, helping Greater Cambridge to grow sustainably.

The new facility will be operationally net zero carbon, be energy neutral and will target a 70 per cent reduction in capital carbon using sustainable construction techniques. Re-using excavated material on site will reduce the carbon emissions and traffic impact from construction.

It is designed to adapt to changing social and environmental priorities, increasing resilience to storm flows and flooding and provide a long-term solution to how we best treat waste water for a growing Cambridge population.

The relocation will enable South Cambridgeshire District Council and Cambridge City Council's long-held ambition to develop a new low-carbon city district on Cambridge's last major brownfield site, known as North East Cambridge. The relocation of the existing waste water treatment facility will enable this new district to come forward and deliver 8,350 homes, 15,000 new jobs and a wide range of community, cultural and open space facilities in North East Cambridge.

The new district will reduce pressure for housing development in greenfield locations, where it would take up far more land and be less sustainable in terms of transport emissions. A low-carbon city district can achieve higher densities of housing than housing developed on Green Belt sites.

CWWTPR - alignment with national and local climate change policies and initiatives

There is a comprehensive series of policies and initiatives in place guiding how the United Kingdom will reach net zero by 2050. The table below shows the relationship between these policies and initiatives, including the contribution delivered by both Anglian Water and the relocation project.

CWWTPR Phase 3 Consultation: Carbon

Goal	Government	National/Industry	Local Cambridge County and others	Anglian Water (AW)	CWWTPR Project
Net zero Carbon	Carbon neutral by 2050 (CN2050) interim target of 68% by 2030	Net Zero Carbon by 2030- Water UK Net Zero (WUKNZR) 2030 Route map	Zero carbon by 2050	Net zero carbon (NZC) 2030	Net zero carbon by 2030
Capital carbon reduction	Forms part of working towards CN2050	Forms part of working towards WUKNZR2030	Forms part of working towards South Cambs District Council Business Plan (SCDCBP) net zero 2050	70% reduction in line with AW's 2030 Carbon routemap	70% against AW 2010 baseline
Operational carbon reduction	Forms part of working towards CN2050	Forms part of working towards WUKNZR2030	Forms part of working towards SCDCBP net zero 2050	27% up to 2025 against AW 2010 baseline	27% AW 2010 baseline – currently operationally net zero with Gas to Grid option
Energy use	Forms part of working towards CN2050	Forms part of working towards WUKNZR2030	Forms part of working towards SCDCBP net zero 2050	Forms part of working towards CNZ2030	Energy neutrality
Renewable energy use	Energy White Paper - Promotes the use of renewable energy in industry and continuing the focus on grid decarbonisation	Water UK 2030 Net zero 80% Power provided by renewable energy generators	Reduce mains gas and electricity demands from Cambourne office by over 50% per year. Reduce carbon emissions from Cambourne office by 49% per year.	To generate 45% of energy demand by renewables	45% net annual energy demand generated by onsite renewables but also generate energy to be used by others to make the project energy neutral

CWWTPR Phase 3 Consultation: Carbon

Goal	Government	National/Industry	Local Cambridge County and others	Anglian Water (AW)	CWWTPR Project
Biodiversity Net Gain (BNG)	Minimum of 10% required for Nationally Significant Infrastructure Projects	Water UK 2030NZRM 20,000 hectares of owned peatland and grassland are restored and 11 million new trees are planted	Work with partners to protect and enhance the environment with the aim of doubling nature - SCDC 2020-2025BP – Doubling Back Nature Strategy has aspirations of 20% to be included within planning policy.	Target to achieve 10% BNG across the business	Project will deliver a minimum of 20% BNG
Tree planting	4 billion	Woodland trust – 50 million trees by 2025 Water UK 2030 Net Zero Route map 11 million new trees are planted	Work with partners to protect and enhance the environment with the aim of doubling nature - SCDCBP	Five-point plan for Green recovery	Appropriate tree planting designed in landscape plan in keeping with local character
Carbon sequestering	Form part of CN2050	Water UK NZ2030RM 20,000 hectares of owned peatland and grassland are restored, and 11 million new trees are planted.	Forms part of working towards SCDCBP net zero 2050	Peat land habitat Natural habitat creation As well as AW's Five-point plan for green recovery	Habitat creation, including grassland creation

Building a low carbon facility to serve Greater Cambridge

As a new infrastructure asset, the project has the potential to support Anglian Water's net zero carbon commitment, in line with both Anglian Water's [Net Zero 2030 strategy](#) and the Water UK Net Zero 2030 Routemap.

The new facility is being designed to:

- be operationally net zero; and
- reduce our capital (embodied) carbon by 70 per cent against a 2010 baseline using the Anglian Water carbon modelling process, thereby reducing the impact of our project.

As part of the ongoing design work, we will continue to develop the design to meet our operational and capital carbon targets. We will share the data on the project's predicted carbon footprint (both operational and embedded) as part of our Development Consent Order application.

The carbon issues associated with the re-development of the existing waste water treatment plant on Cowley Road, which is to be decommissioned, will not be assessed as part of the Development Consent Order (DCO) process. The carbon footprint of the redevelopment of the site will be assessed as part of the separate master planning process for those proposals. The carbon used in constructing the existing facility has already been emitted. It is only the additional carbon associated with the relocation of the waste water treatment works which is relevant to the DCO decision-making process. The cumulative environmental effects of the relocation project, the re-development of the existing site and other relevant projects will be considered in the Environmental Statement accompanying the DCO application. The project's EIA scoping report noted that cumulative carbon emissions have been scoped out of the assessment because cumulative carbon effects would need to be assessed on a global scale.

Building a net zero carbon waste water treatment plant

Reduce our carbon footprint through the design of the new plant

- Through our “Risk Opportunity and Value” design process, we take into account carbon impact as a key decision-making factor.
- This process considers issues such as the physical sizing of infrastructure and choice of construction materials to reduce the amount of capital carbon that will be produced.

Sustainable, low-carbon construction techniques

We are exploring the latest in construction techniques and products to minimise the impact of our delivery. For example, we are currently reviewing construction methodologies, material selection and carbon in the supply chain in order to reduce capital carbon. Options currently being explored further include:

- advanced process selection to reduce the overall size of the plant
- planned use of modern low-impact construction techniques
- innovative low-carbon construction material selection (e.g., low carbon concrete, alternative materials for tunnels and pipelines)
- off-site fabrication and manufacture to help reduce waste and optimize construction phase activity
- local sourcing of construction materials.

Renewable energy

The sludge treatment process creates renewable energy through anaerobic digestion. The biogas produced will be fed into the local gas network, thereby heating homes and businesses.

Biogas generated by this process may also be used on-site to generate heat for use in the sludge treatment process.

Generating and feeding renewable bio-methane into the national grid will reduce carbon emissions, as well as providing renewable heat to people’s homes, displacing the natural gas from fossil fuels currently used. It is anticipated that this will result in a calculated reduction of 4,680 tonnes (t) of carbon dioxide (CO₂) equivalent (e) per year - against the 2010 baseline solution, taking this element of the plant from a being a net carbon emitter to a net remover of CO₂ from the atmosphere.

We are also planning to integrate solar power generation into the plant layout in order to generate low carbon electricity. The current proposal is to install photovoltaics panels (PVs) on the southern side of the north edge of the earthwork bank, over car parking and on some building roofs. This could provide up to 7 megawatt hours (MWh) of clean electricity per year. Solar PV and energy storage technologies are rapidly evolving, so the parameters of

the DCO will maintain flexibility to allow the latest technology to be utilised at the time of construction.

These renewable energy solutions will make the new plant energy neutral, meaning it will produce, on average, as much energy as it consumes. If we proceed with a “gas-only” biogas option, we will be producing more energy than we utilise, and we may become a net exporter of energy.

Habitat creation and carbon sequestration

As discussed in our outline Landscape, Ecological and Recreational management plan (LERMP) available in the consultation document library – see www.cwwtpr.com/document-library/ we have developed a landscape masterplan, which when implemented will provide visual screening for the plant, improved recreational opportunities and new natural habitats.

Our habitat creation will deliver a minimum of 20 per cent biodiversity net gain. As well as creating new habitats and increasing biodiversity, this approach can also provide the additional benefit of carbon sequestration. As plants grow, they take carbon out of the atmosphere and into their biomass, thus reducing atmospheric carbon dioxide. Both the grassland and woodland elements of our ecological plan will efficiently deliver this ecosystem service.

Monitoring and measurement of our carbon reduction achievements

In order to monitor and measure our carbon reduction measures against the targets outlined, we will adhere to the following management and reporting standards.

PAS 2080 Managing Carbon in Infrastructure Standard

Working with Government and leading businesses through our role in the Green Construction Board, Anglian Water developed the world's first standard for managing carbon in infrastructure (PAS 2080), which is now being used nationally and internationally. In 2016 we became the first organisation globally to be externally verified (through LRQA) to PAS2080 Carbon Management in Infrastructure. This standard ensures that our approach is aligned with key stakeholders within the value chain, including product suppliers, constructors, and designers, in demanding and enabling low carbon solutions.

ISO14064 – Reporting of Greenhouse Gases

We have also achieved platinum status on ISO 14064, the international standard for the quantification and reporting of greenhouse gases. Our annual emissions are verified to ISO-14064 through the Carbon Reduce Scheme (formally CEMARS) with Platinum Status for continuous carbon reduction against this standard.